



# mini'app'les

apple computer user group newsletter

VOLUME VIII No 1

JANUARY 1985

## CALENDAR

## CALENDAR

## CALENDAR

WHICH	WHEN	WHERE	WHAT
St. Paul Branch Note 3	Tue Jan 1 7pm-10pm	Mahtomedi Fire House Hallam & Stillwater.	Happy new year No Meeting Tonight
Pascal & Apple /// Note 1	Wed Jan 2 7:30pm	Minnesota Federal 9th Ave S Hopkins	Pascal & Apple /// Special Interest Group Meeting.
Dakota County Branch Note 7	Tue Jan 8 7pm-10pm	St. John Neumann Church 4030 Pilot Knob Rd, Eagan	
Board Meeting Note 2	Wed Jan 9 7:30 pm	Minn Federal of Roseville Lexington & Larpenteur	Regular Board Meeting. All members are welcome!
Computers in Medicine Note 13	Wed Jan 9 7:00pm	Health Associates Ctr. 2221 University SE, Rm 115	
Business SIG Note 10	Wed Jan 9 7:30	Edina Community Center 5701 Normandale	Pro Tax Program w/MN forms Softax by Ron Schlangan
St Cloud Branch Note 15	Thu Jan 10 7:30pm	Waite Park City Hall 5th Ave & 3rd St N.	
REGULAR MINI'APPLES Note 5 Map inside	WEDNESDAY January 16th Prgm-7:30pm SIGs-8:30pmt	UNIVERSITY MINNESOTA ST. PAUL Student Ctr., Buford Ave. Near State Fair Grounds	Bill Johnson & Dave Peterson of Apple Computer, Minneapolis; Andrew Niemic of Checkmate Technology on 160 col card.
Education SIG	Wed Jan 16	After Regular Mtg.	Discussion on MECC Conf. - Note 12.
Investment SIG Note 4	Thu Jan 17 7-9:30pm	Henn Cty Lib at Southdale 7001 York Ave S.	Basics of Technical Analysis by Harold Hoffmann
NorthWest Branch Note 16	Tue Jan 22 7:00pm	Rockford Rd Library New Hope	4 Word Processors reviewed.
Minnetonka Branch Note 8	Wed Jan 23 7:30pm	Glen Lake Community Ctr 14300 Excelsior Blvd room E	La Triviata and Omnis (Apple II version) reviewed.
Macintosh SIG Note 9	Mon Jan 28 6:30/7pm	Edina Community Library 50th & Hwy 100	Mike Carlson discusses new Apple hardware.
St. Paul Branch	Tue Feb 5	Mahtomedi Fire House	Note 3
Pascal & Apple ///	Wed Feb 6	Minnesota Federal	Note 1
Geneology CLUB Note 11	Sun Feb 10 2:00pm	Minnesota Historical Society Library St Paul MN	
Dakota County	Tue Feb 12	St. John Neumann Church	Note 7
Business	Thu Feb 14	See February for Meeting site	Note 10
St Cloud Branch	Thu Feb 14	Waite Park City Hall	Note 15
REGULAR MINI'APPLES Note 5 Map next month	WEDNESDAY February 20th Prgm-7:30pm SIGs-8:30pmt	Edina Community Center 5701 Normandale 7 blocks S. of 50th St.	To be announced
Education SIG	Wed Feb 20	After Regular Mtg.	Note 12
Investment SIG	Thu Feb 21	Henn Cty Lib at Southdale	Demo of Investment Software - Note 4
Macintosh SIG	Mon Feb 25	Ties, PCA Bldg, Cty Rd B2	More data bases - Note 9
Northwest Branch	Tue Feb 26	Rockford Rd Library	AppleWorks Demo
Strictly Business	Feb 25-27	Hyatt Regency	250 booths!
Minnetonka Branch	Wed Feb 27	Glen Lake Community Ctr	Note 8

### Notes:

(See page 2 for telephone numbers)

- |                    |                |                      |                     |                        |
|--------------------|----------------|----------------------|---------------------|------------------------|
| 1. John Schoeppner | 5. Mark Abbott | 8. Dick Peterson     | 11. Bill DeCoursey  | 14. Steve George       |
| 2. Dave Laden      | 6. Dan Buchler | 9. Mike Carlson      | 12. Jane Chatterjee | 15. Frank M. Ringsmuth |
| 3. Fred Woodward   | 7. Bob Pfaff   | 10. Dick Marchiafava | 13. Stewart Haight  | 16. Jere Kauffman      |
| 4. Eric Holterman  |                |                      |                     |                        |

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<b>ZENITH</b>	
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HX-12 (RGB) .....	489

<b>PANASONIC</b>	
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## COMPUTER BUYING SERVICE

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# Mini'app'les

The Minnesota Apple Computer Users' Group, Inc.

P.O. Box 796  
Hopkins, MN 55343

## Board Members

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Shows and conventions	Steve George	935-5775
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St. Cloud	Frank Ringsmuth	253-6032
St. Paul/Mahtomedi	{ Fred Woodward	426-4060
	{ Jim Schenz	429-4931

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Liaison (*) - Geneology	Bill Decoursey	574-9062
Liaison (*) - Medical	Stewart Haight	644-1838

\* To provide contact with non-Mini'app'les SIGS

## Software Director's Staff

DOM Sales - Meetings	Terry Schoeppner	455-8613
	Dave Nordvall	724-9174
	Gene Kasper	941-5490
DOM Sales - Mail	Hugh Kurtzman	544-7303
DOM Editors/Producers	Peter Gilles	475-3916
	Steve George	935-5775
	Hugh Kurtzman	544-7303
MAC DOM Editor/Prod.	Steve Baker	935-1192

## Communication/Newsletter Publication Staff

Director & NL Editor	Daniel B. Buchler	890-5051
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Assistant NL Editor	Jo Hornung	922-7665
Contributing Editors	Arsen Darnay	933-0399
	Steve George	935-5775
Composition/Layout	Joan Kistner	
Advertising	Eric Holterman	822-8528
Mailing Coordinator	Hugh Kurtzman	

## INFORMATION

This is the Newsletter of Mini'app'les, the Minnesota Apple Computer Users' Group, Inc., a Minnesota non-profit club. Articles may be reproduced in other User Groups' publications except where specifically copyrighted by author.

### Questions

Please direct questions to appropriate board member or officer. Technical questions should be directed to the Technical Director.

### Membership

Applications for membership should be directed to the Membership Co-ordinator: Ann Bell 544-4505  
8325 39th Avenue N.  
New Hope,  
Minnesota, 55427

\$12 buys membership for one year. New members and persons renewing after letting membership expire, pay a \$5 administration fee. Members receive a subscription to this newsletter and all club benefits.

### DOMs and MSDs

DOMs (Disk of the Month) are available at meetings for \$5/disk or any DOM may be ordered by mail for \$6.00/disk. MSDs are \$15/disk at meetings or \$17.50/disk by mail. Send orders to Mini'app'les at above address attention DOM Sales.

Members may have DOMs copied to their own media. Contact Chuck Thiesfeld - details within this newsletter.

### Dealers

Mini'app'les does not endorse any specific dealers but does promote distribution of information which may help club members to identify the best buys and service. Consequently, the club does participate in bulk purchases of media, software, hardware and publications on behalf of its members.

### Newsletter Contributions

Please send contributions directly to the Newsletter Editor. Hard copy binary or text files are preferred, but any form will be gratefully accepted. Deadline for publication is the 1st Wednesday of the month preceding the month in which the item might be included. An article will be printed when space permits if, in the opinion of the Newsletter Editor, it constitutes suitable material for publication.

### Advertising

Direct Advertising inquiries to our co-ordinator Eric Holterman at:  
PO Box 8266  
Minneapolis, MN 55408 612-822-8528

E-Mail: Source, BBR490;  
CompuServe, 71445,400

Circulation this issue: 2200

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You Can Count On It	7
Yukon Computer Products	BC

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# ANNOUNCEMENTS

## January Regular Meeting

**T**he next regular meeting of Mini'app'les will be held on Wednesday, January 16, at the near usual spot on the "Ag" campus - Student Ctr., Buford Avenue, University of Minnesota St. Paul campus. This is a double headed program:

1. Bill Johnson and Dave Peterson of Apple Computer (Minneapolis) will talk to us and answer questions.
2. Andrew P. Niemic of Checkmate Technology will be talking about their 80/160 column cards. That card draws about 1/3rd of the power used by a Videx Ultraterm!

MacSIG  
by Dan Buchler

The next meeting of the MacSig will be held on Monday, January 28th at:

Edina Community Library  
50th and Hwy 100.

This is the building right next to the Police station, East of Hiway 100, and on South side of 50th St. Don't go to the community center several blocks away!

Since this meeting follows the annual board meeting of Apple Computer Inc., we have persuaded Mike Carlson to elucidate on those goodies which we very much expect Apple to announce at their board meeting. Candidate items are:

- Apple Laser Printer
- Apple Bus
- New Mac versions

This year (1985) we will try to alternate meeting places as we do for the main Mini'app'les meetings. January will be in the Edina Library as stated above, but February will be at the TIES offices in the PCA building, on County Road B2 near Rosedale. Watch the calendar!

We are trying to get our act together so we can announce the Mac SIG program in the newsletter. As this newsletter goes to press, the December MacSIG meeting will be taking place, at which there will have been a session on the pros and cons of various database programs.

A report by Tom Edwards on the November MacSIG meeting is printed elsewhere in this newsletter.

MacDOM's Past and Future  
by Steven E. Baker

The Macintosh phenomenon continues and our MacDOM endeavor is proving to be a big hit. We have produced four MacDOM's during 1984 and hope to provide a good output throughout 1985. In order to assure this continuation of MacDOM's, I am

continuing to look for new contributions from our membership in the following areas:

Microsoft Basic programs  
MacPascal programs  
Stand alone Mac programs  
Templates for Multiplan, Filevision, etc.  
Tips and Techniques items for MacReference Sheets  
Clipboard/Scrapbook art  
Software and Hardware reviews for the newsletter

As an inducement to get you to contribute to your MacDOM, you are entitled to a free MacDOM (you must supply the media) for each contribution which we use.

It is very helpful if program descriptions are included within the program information area, within the program

**GOTO 7**

## Mini'app'les Software Disks MSDs

### 3 Great Disks:

- Mini'Scrip Checkbook Financial System - MSD #1. A home and small business checking and accounting package by Leighton G. Siegel.
- Micro-mailer - MSD #2. Mail list program by Juris and Paula Ozols of Prairie Microsystems Inc. Magic Window though not required works well in conjunction with Micro-mailer.
- Higher Text Extensions - MSD #3. Contains Higher Print by Dan Buchler, Message Maker by Charles C. Boody and Higher Word-processor by Don Hagberg.

Higher Print provides a high density print capability with a selection of fonts and more if you own Higher Text from A.P.P.L.E. The newsletter headers and logo are printed with Higher Text.

Message Maker requires that you own HIGHER TEXT. It serves as a tool to create and display, on your screen, messages which scroll up and down, left and right and do other useful things.

Higher Word Processor is a easy to use line oriented text editor suited to letter writing and everyday home use. It integrates with Higher Print.

All MSDs are available at meetings, to members only, for \$15, or by mail from Terry Schoeppner for \$17.50. See classified ads.

Announcements continued from page 6

itself, or as a separate MacWrite article. A lot of the public domain software, which I receive, comes without any documentation at all. I don't have the time myself to figure out each one and document the operating instructions.

So please, if any of you have taken the time to understand one of these public domain programs, write up some documentation and share your findings and work with the rest of us. There are some real nice programs for the Macintosh, just waiting for you, and, best of all, they are priced right.

Speaking of prices and MacDOM's, they are now available for mail order. The price is \$9 each, including postage. Make checks payable to Mini'app'les and send checks to:

Mini'app'les  
P.O. Box 796  
Hopkins, MN 55343

Attention MacDOM Sales

All past and current MacDOM's will continue to be available at the monthly Macintosh SIG meetings, priced at \$8 each for members, and \$10 each for non-members. (D.A.M. utility disk is still \$5 for all.) I am still looking for assistance with MacDOM's as follows:

**MacReference Sheet**-Someone to collect Mac tips and techniques ideas and prepare them for inclusion in the newsletter and/or MacDOM's.

**MacART**-Someone to collect clip art, MacPaint pictures or art for start-up screens for future DOM's.

**Membership Sales**-Someone, who attends monthly meetings, to do the following: explain to potential members what Mini'app'les and the Macintosh SIG is all about, take membership dues, distribute new membership kits, and handle membership related questions.

**MacDOM Production**-Someone to assist myself in getting the MacDOM together and several individuals to help copy disks and label them. Living in southwest portion of Cities would be helpful, but not required.

**MacDOM Sales**-Someone to assist myself in MacDOM sales at monthly meetings, and to fill in during my absence.

In most cases, more than one individual could be put to work. Please see me during the monthly meetings regarding the above jobs.

Please continue to mail or give your contribution(s), MacDOM related question(s) or comment(s) to:

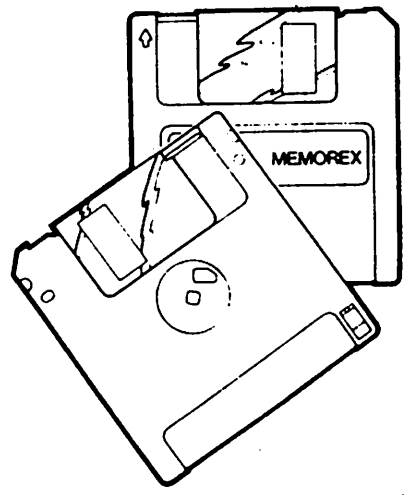
Steven E. Baker  
c/o Advantek, Inc.  
7750 West 78th Street  
Minneapolis, MN 55435  
Home Phone: 935-1192

### Strictly Business Computer Show by Dan Buchler

The Strictly Business Computer Show will come again to Minneapolis in February, at the Hyatt Regency Hotel on February 25, 26 and 27. Approximately 270 booths are expected (contrasting with 100 at the Twin Cities Computer Show). We will have a booth there. The booth will be administered by members of the Business SIG. However we do need additional volunteers to staff the booth. Call Dan Buchler at 890-5051 if you are interested. Next month we hope to publish a \$2.00 coupon to help defray the cost of entrance into the show. Admission to the show is restricted to senior citizens over 21 years in age! If you are under 21, and really want to go - call Dan Buchler at 890-5051.

**GOTO 8**

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Announcements continued from page 7

### WWTC Computer Talk

Tune in, not to KSTP, but to:  
WWTC (1280AM).

It happens Sunday morning, 9AM-10AM, not Saturday night.

Mini'app'les will supply an "expert" for this show on the second Sunday of each month. If you have an Apple-related question, here's your chance to get on the air! Note: Tom Edwards was our representative for December. Thank you Tom.

### Business SIG News by Dick Marchiafava

The Mini'app'les Business SIG will meet at the Edina Community Center, 5701 Normandale Road, Room 101, for the January 10th meeting. The meeting starts at 7:00 PM with "Random Access", a question and answer session. The program starts at 7:30 PM.

Remember, the Business SIG will meet on the Thursday before the main club meeting from now on!

### Upcoming Meeting Subjects

January 10th, Tax package SofTax 84. Demo by Ron Schlangan, the author. This package is for the tax professional, and includes Minnesota and Federal schedules.

February 14th, AppleWorks demo by Mr. Ernie Bedor.

The Business SIG will be meeting at a new location starting in February.  
**WATCH THE CALENDAR AND ANNOUNCEMENTS FOR NEW LOCATION.**

February 25-27th. COMPUTER EXPO 85, Strictly Business. See above.

March 14th, Small Applications for the busy executive. Erik Carlson.

April 11th, Apples for Large Corporations.

May 9th, Tentative: Manufacturing Inventory Control on a Micro.

Future: Corporate Users, MAC/LISA - Connection to a Mainframe  
Business Productivity Tools

### Summer Meeting Schedule

The Business SIG will commence the summer meeting schedule in June. We will gather after the main club meeting for an informal meeting in an adjacent room. Summer schedule dates are June 19, July 17 and August 21st.

I am pleased to announce that Mr. Erik Carlson has joined the SIG Committee. Erik has been an active member of Mini'app'les and the Business SIG for a long time. His talents will be valuable to us.

### Investment SIG by Eric Holterman

The next meeting of the Investment SIG will be on Thursday, January 17, at our regular meeting place at the Hennepin County Library near Southdale. One of our members, Harold Hoffmann will discuss techniques of basic technical analysis, including such things as moving averages, RSI, oscillators, use of stops and controlling risk. Harold is the author of the Cyber-Scan programs and brings a lot of expertise to the subject. If you have questions concerning the January meeting only, please contact Bill Jensen (338-0002) who will be coordinating the meeting.

Harold will also be available after the meeting to answer questions concerning his programs, which he is offering to Mini'app'les members at a 40% discount! They range in price from \$195 (\$117 with 40% discount) for Market-Aid to \$1,695 (\$1017 discounted) for Cyber-Scan.  
**GOTO 9**

 **Silicon Prairie**  
**COMPUTER**  
**LINE**

with: Ray Douglas  
Gary Finseth

And a cast of thousands-  
*Including you!*

---

**9-10 a.m. Sundays**  
**WWTC am 1280**  
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---

Computer Line BBS 333-2541  
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Announcements continued from page 8

including Mini and Super-Tic intra day data analysis systems. The most popular packages are Cyber-Scan, for commodity traders, and the Stock Market Analysis package (actually Cyber-Scan plus additional programs for the stock and options markets), each listing at \$595 and available at \$357 to members. There are more features, studies, charts, etc. than I have space to cover here. The club does have demo disks and tapes, that can be borrowed for short time periods, or you can get further information from Harold at (612) 485-4233 or PO Box 250, Winsted, MN 55395.

At our December meeting, Pat Jandro, the Dow Jones News/Retrieval regional representative from St. Louis, demonstrated both the service and some of their programs. There was alot of interest and questions from those present and we appreciate Pat taking the time to help our group.

Our meetings are on the third Thursday of the month at the at the Hennepin County Library, near Southdale. We will be in the Helen Young Room. Doors open at 7 PM and the meeting starts at 7:15 PM, adjourning by 9:15 PM. Also, please be aware that the Library is being remodeled and we may have to change meeting times, dates or places on relatively short notice. Check each newsletter for the latest info. The library is located at 7001 York Avenue South. It is on the east side of the street, across from Target. Plenty of free parking.

Minnetonka Branch  
by Steven E. Baker

The Minnetonka Branch will hold its first 1985 meeting on January 23, Wednesday night, starting at 7:30 p.m. Our meetings will continue to be held at the Glen Lake Community Center, Room E, located at 14300 Excelsior Blvd.

The January meeting will feature two topics. The first will be a demonstration of La Triviata, a computerized trivia game running on the Apple ][+, //e, and //c. La Triviata is locally produced by Quest Learning System of St. Paul.

The second topic will be a demonstration of Omnis, a relational database program for the Apple series of computers, presented by Jim Hanson. Jim has been working with Omnis for a couple of months now, and should provide us with a good review and demo of this program.

Those attending the November meeting were presented with a excellant demo and review of Executive Secretary by Gene Hatfield. Gene provided an in-depth review of the word processing program and its various options. Thank you Gene for a fine presentation.

Upcoming programs are still being decided at this time. If you are interested in a specific topic, and would be interested in presenting it, or know of someone that would present a program, please get in contact with Dick Peterson, 473-5846, or Steven E. Baker, 935-1192. The Minnetonka Branch meetings are always open to all owners of Apples, even Mac's. (Note: I think I'm the only Mac owner that regularly attends this meeting, and I'm taking a ribbing. So Minnetonka area Mac users: come and join the fun!)

**DOM Sales**

DOMs (Disks of the Month) may be ordered by mail. Apple ][, ][+, //e and //c DOMs are \$6 including postage. MacDOMs are \$9 including postage. Send checks to:

Mini'app'les  
PO Box 796,  
Hopkins, MN, 55343

Attention DOM Sales

If you are ordering MacDOMs, identify as:

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**GOTO 10**

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Announcements continued from page 9

**Program Submissions**  
by Steve George

Please indulge me for a column and allow me to toot my horn (CALL -198). Hopefully, the following will motivate some of you to contribute Apple ][, ][+, //e, & //c programs (before MAC consumes us all! - {The disease has already been diagnosed as malignant - Ed.})

Recently Mini'app'les received the newest IAC disk #41. Its contents are all related to Appewriter (AW) ][, //e, & //c. Some are glossaries, tutorials, tech notes, Word Processing Language for AW (WPL) usage, AW customization, and a fix for using AW//e on a //c.

Mini'app'les contributors include: John L. Hanson, Arsen Darnay, Chuck Boody & me. Others are Sandra Brockman (Kansas City), Dianne Lorenz (Wash. Apple Pi), & Don Lancaster (via Apple Assembly Lines).

The origin of my glossary programs was the personal frustration of trying to remember (and having to input) each printer control code. With that 'conquered', I set forth on WPL to turn the glossary usage into an on-screen help utility. The result: the AW glossary files on Mini'app'les DOM #29... and ultimately the new IAC #41.

I encourage our Software Director to re-release our DOM #29 with the additional programs supplied by the IAC.

[If you have created a BASIC, WPL, or other program related to AW, call me for the address of the IAC Librarian. He says that another AW utility disk will be issued when enough material has been received.]

So you see, a program to fulfill a personal need can definitely be helpful to others (AW or not). I encourage each of you to consider submitting a program to Mini'app'les that you have developed which fulfills a general or specific need. Other members have probably had a similar problem, but lacked the know-how or time to solve it.

You can help them out! After all, that's the real purpose of YOUR user group: to help each other make the best use of our Apples.

**Education SIG**  
by Jane Chatterjee

The Education SIG will meet in January as usual, right after the main meeting. The topic will be a presentation and discussion on the recent MECC conference.

**Calendar Announcements**

Please submit all calendar dates, changes, etc., to Ron Androff. Ron has volunteered to be the calendar-maker for the newsletter. As for all newsletter items, timely submission helps us all!

**DOMs by Mail**

by Chuck Thiesfeld

Now members can order DOMs (not Mini'app'les Software or MacDOMs) using their own diskettes. Here is the procedure:

Make up a package containing the following:

1. Blank diskette (or diskettes if more than one is desired).
2. Mailer. Diskettes will be returned in same protective device used to send the diskettes, provided such will fit in the mailer.
3. Send correct postage in stamps -- do not send money in lieu of stamps.

**GOTO 11**

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Announcements concluded from page 10

- 4. Self-addressed return label.
- 5. \$1.00 copying fee per DOM or disk.
- 6. A note indicating which DOMs are desired.

Send to:

C. Thiesfeld  
8416 Xerxes Avenue S.  
Bloomington, MN 55431

Please allow 60 days for delivery in USA. Incomplete packages will not be returned. DOMs 1 thru 29, except 18, EAMON #3, and 8 Pascal disks are currently available. Mini'app'les Software disks (MSD) are not available! General questions about DOMs should be addressed to Peter Gilles.

Please note that DOMs may also be purchased on club-supplied media by sending \$6.00 to the software sales coordinator. See page 4. The first 3 Mini'app'les Software Disks (MSD): #1 - Mini'scrip, #2 - Micro Mailer, and #3 - Higher Print/Higher Word Processor/Message Maker are available by mail from software sales for \$17.50. Or, most DOMs, EAMON disks and some other public domain software are available at regular meetings, and at some Branch meetings, for sale to members at \$5 each, and the MSDs for \$15 each.



# Mockware

from CE Software

by Steven E. Baker

**M**ockware is a series of Macintosh desk accessories available from the same folks as the Desk Accessory Mover. CE Software is continuing its marketing of software under the MacHonor (TM) system. That is, the software can be freely copied by anyone and if you choose to keep it, just send a specified dollar amount for a license fee.

The newest disk contains three Mockwares.

MockTerminal is a complete though simple terminal package in a desk accessory. It boasts of such features as a seven-number phone book, automatic redialing of busy numbers, 300/1200 baud operation, and recording to disk of text received.

MockWrite is a small text editor in a desk accessory. It allows you to read from MacWrite "text only" files, make changes, perform searches, print it out, and save it all back to disk again. You can adjust the size of your editing window at will, and use the scroll bar to page through your text.

MockPrinter is a desk accessory that will print text files while you keep using your Macintosh. It reads and prints your files a line at a time, so there is no limit to how big of a file it can print.

The above information comes from CE Software's latest bulletin. The complete disk includes the three desk accessories, manuals in MacWrite documents, and a special "Desk Accessory Installer" program, for those who don't have the Desk Accessory Mover. The license fee for all three programs is \$25.00.

The MacSIG will be distributing the programs subject to the licensing fee request for \$5.00 to all interested parties. The program should be available during the MacSIG's January 1985 meeting or can be obtained directly from:

CE Software,  
801 73rd Street,  
Des Moines,  
Iowa 50312.  
Phone number (515) 224-1995.

An open invitation is made to any Mini'app'le member to write a newsletter article/review on Mockware. (See your name in print.)



# Is your Apple fyreproof?

Well...here's your chance to find out! All you need is the new adventure game developed by TRISOFT called FYREQUEST! FYREQUEST will give you hours of challenging fun and excitement...as you're searching the castle of over 250 rooms to slay the evil dragon, ALSANTZ. But, beware: There are many dangers lurking in every shadow ready to confound your assault on ALSANTZ. If you're ready to try a HOT one like FYREQUEST just send \$20 or contact: TRISOFT, 1292 E. Como Blvd., St. Paul, MN 55117. But act now!



**Dear Mom,**

I was messing around with my home computer today and I found some great **HOT DEALS** on **C**. (I selected



“Sales & Specials” from “MAIN MENU”). My car broke down this morning so I found a new **USED CAR** on **C** too.



Then I got my new **USED CAR** some brand **NEW TIRES**, an **OIL CHANGE**,



**TUNE UP** and a **NEW BATTERY**, all by checking the business index.



Then I used my home computer to find Lisa (my new girlfriend), a **DIAMOND RING**, **NEW DRESS**, **FUR COAT**, **LINGERIE** and **FLOWERS**.



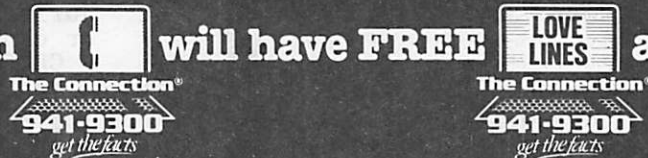
I found all these great gifts in the business index. All the presents made Lisa hungry, so I used **C** to check out



all the great **DINING INFO**. But don't worry mom, I still love you.



best and next month **C** will have **FREE LOVE LINES** and I'm



going to have a special message for you.

So why don't you leave a message for me and we can both use our home computers to find great stuff and read all the free love messages in **LOVE LINES** next month!

**Love & Kisses,**



*Sonny*

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# 280 Card Update

Z80 Cards & Applied Engineering  
by Andre Marc van Meulebrouck

Reprinted from the Denver Apple Pi  
"Seed" V6 #9 Sept. 1984  
Keyed in by Steve George

**A**fter a nearly one year long search for the ultimate Z80 card, I finally feel satisfied that I have found it. If I were giving out awards, my award would go to Applied Engineering. In this article I will start by explaining why you would want a Z80 card, then, I will describe the motherboard problems some Apple owners may experience when trying to run a Z80 card and how Applied Engineering's end user support can help. Next, I will enumerate the advantages of the Applied Engineering Z80 card, and last, I will explain why having 64K of RAM on a Z80 card is not an asset.

## Why CP/M?

First of all, what is a Z80 card? It is a printed circuit board that has a Z80 MPU (micro processing unit) on it. It allows you to run the operating system called CP/M (Control Program/Microcomputers). The advantage of the CP/M operating system is the enormous amounts of software available for it. The CP/M operating system was created by Gary Kildall, starting in 1973. The system was written in PL/M (a high level language), and gives the impression of being modeled after operating systems on mainframes. It was the first real operating system for personal computers. This gave it a momentum of software following that is still impressive today. The reason you would want CP/M is to be able to tap into that huge base of software, and a Z80 card is needed to run CP/M since it is based on the Z80 MPU (originally, however, it was based on the Intel 8080, but the Z80 mnemonic set is a superset of the 8080 set). CP/M is rich in business software, and also quite rich in languages. Although everyone's reasons for wanting CP/M are different, mine are for the languages, and public domain software available for it. The highly respected TLC (The Lisp Company) LISP is available in Apple CP/M format. Two public domain LISPs are available; XLISP (written in C), and a LISP written in Pascal. Both are from the SIG/M Users's Group public domain library, and are available in the Denver Apple Pi Users's Group library in Apple format. In addition, Prolog, the language of choice in Japan's 5th Generation Computer Project is available in Apple CP/M format. For an Apple owner, there may be more software available

under CP/M than there is under DOS 3.3, or Prodos. Many Apple owners are aware of this, in fact, there is said to be more Apples running CP/M than any other brand of computer in the world (reference 1 in bibliography).

## Testing Your Motherboard, and Applied Engineering's End User Support.

One thing to consider if you buy a Z80 card is: can your Apple drive it? In the case of the Applied Engineering card, you don't need to worry about this because Applied Engineering's user support is excellent. However, if you are considering a different brand, you should check out the vendor to find out how reputable they are, and how good their end user support is. This is important because Z80 cards sometimes don't function in some Apples since some Apples have bad chips in them. Apple buys their chips from the lowest bidder, and this creates deviations in the chip specifications since some chips may be on the high side, and some may be on the low side, or, the vendor may not be in specification at all! Chips of dubious integrity, when put in combination with other chips, may not work right. This may not affect DOS or Prodos, but may affect a coprocessor board. My computer had bad chips, and I know of another user who actually had to have his entire motherboard replaced to run CP/M. The only way to know if your motherboard is completely okay is to try a Z80 card (from a friend or a computer store) that is known to work, in your computer. If it does not work, some of the chips on your motherboard are weak and/or out of specification and will need to be replaced. I tried three different Z80 cards in my Apple; an imitation Microsoft Softcard, an ALS card with 64K of RAM on it, and, finally, an Applied Engineering card. None of them worked, so I finally became suspicious of my computer. After trying the Applied Engineering card in another computer, I knew my computer had problems. I phoned Applied Engineering and told them my Z80 card did not work. They told me: "No problem, we'll send you another one." I told them my computer was at fault, and the technician there told me to send my computer in and they would fix it for free, including

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paying for the return UPS shipment. All the users of Applied Engineering products I talked to, both before I bought my Z80 card, and after I had trouble, had nothing but praise for Applied Engineering, and they all said they would not hesitate to send their computer to them. So, I shipped off my computer. It was received on a Friday, and the technician I talked with fixed it on Saturday! On Monday, after a weekend of testing, my computer was shipped back to me! This kind of user support is rare, and is a refreshing change from the "end user drop dead" attitudes I have gotten from Digital Research and a few other companies.

### Why the Applied Engineering Card?

The Applied Engineering card will run in Apple II's, II+'s, //e's, and Franklins. It will work with all popular 80 column cards automatically. I have never heard of anyone having trouble with any make of 80 column cards with this card. Parallel and serial interfaces can be installed using the CONFIGIO basic program which is a utility that comes with Microsoft's Softcards. The Applied Engineering card lists for a mere \$139 and it will run the latest version of CP/M (CP/M 3). It also runs versions of CP/M earlier than 2.0, and all the versions between 2.0 and the latest versions. This card will run CP/M software downloads from 8 inch disks (8 inch format is the CP/M standard), and it will run Microsoft Softcard CP/M formats. This card runs at 4 MHz, does Z80 interrupts, and supports graphics in GBASIC. The graphics in GBASIC are very similar to the graphics in Applesoft. Applesoft programs need little translation to run in GBASIC. The Applied Engineering card is rather small in size because it has such a small number of chips on it. This means less power is required, less heat is created, and, there are less chips that can potentially fail. If you look at the card you will see it is very well made. All chips are in housings (sockets). This card will run a variety of CP/M operating systems that come with various packages. In addition, Applied Engineering is developing an operating system that will be available to all future and past owners of their card. It will be called "CP/AM", standing for "Control Program/Apple Microcomputers".

### Why 64K of RAM Onboard Is a Bad Idea.

The CP/M cards which have their own memory (64K of RAM) do not run the Microsoft Softcard CP/M format because they do not access the Apple's I/O memory the way the Softcard does.

This is a severe disadvantage because the point of CP/M for most Apple owners is to try to be compatible with the largest base of software possible, so the cards with 64K on them defeat the purpose and advantage of having CP/M! The Applied Engineering card is the most compatible of them all, running more formats and software than any of the other cards. The Microsoft Softcard set a defacto standard for Apple CP/M formats, despite its being non-standard. So, if you get CP/M, and can't run the Microsoft Softcard format, you have cut out a huge base of Apple CP/M programs. In fact many times when software is advertised as being available in Apple CP/M format, what is meant is that it is in Microsoft Softcard format. Thus, you want to get a card that will run Microsoft Softcard format as well as standard CP/M formats like you get when you download an 8 inch disk into Apple 5 1/4 inch format. The Applied Engineering card is the only one I know of that can accept both formats well, in addition to running CP/M 3, the latest version of CP/M.

Microsoft Softcard //e—like all the other cards that have 64K of memory on them, this card will not run the Microsoft Softcard format. In addition, this card will not run CP/M 3. This card has its own video equipment. Why pay for video equipment if you already have a video card? You can't use your own video card with this card, which is too bad if you like your video card better than the video equipment on this card. This card is huge and requires more power and creates more heat than the Applied Engineering card, and, because it has so many chips on it, your chances of developing a bad chip is greater. A very unpalatable quirk of this card is the fact that it must go in the auxiliary slot. If you have a card in slot 3 that will coexist with an Apple extended 80 column card in the auxiliary slot, you may not want a Z80 card that requires that slot. It is likely to cause problems with such a set-up. This card is EXPENSIVE, and it will run on //e's only.

PCPI APPLI-CARD—this is the card Franklin sells as their CP/M card, and this card, under the name "StarCard", is often bundled with Wordstar. It has 64K of memory on it, so it too will not run CP/M 3 either. It is more expensive than the Applied Engineering card also.

Digital Research Gold Card—this card is ludicrously overpriced. The marketing strategy for this card seems to be a belief that people will pay absurd prices for

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			Blake Middle School	55343	N/A
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Borman, Stanley N.	55124	612-452-7852	Carstens, Allan M.	55432	612-786-0384
Borreson, Phillip J.	54773	N/A	Carter, John H.	55438	612-377-6553
Bouchard, Scott	55344	612-941-9654	Carter, Kenneth W.	55441	612-542-8072
Boucher, Michael L.	55124	612-432-8836	Carver, Irving L.	55110	612-429-3475
Bouley, Mike	55426	612-545-2206	Celt, James M.	55432	612-780-3745
Bourg, Gary & Ann	55407	612-722-3418	Chadwick, Barbara	55318	612-934-1852
Bowman, Dale E.	55419	612-824-7808	Chan, Carrie K.	55113	612-644-2434
Boylan, Paul M.	55029	612-689-5287	Chapman, Ed	55372	612-447-5677
Bozicevick, Joe	55122	612-454-2265	Chapman, Kevin James	55427	612-331-7590
Braatz, Dean R.	55436	612-925-9186	Chartrand, Gerald R.	55418	612-788-3024
Brabec, Tim	54021	715-262-5197	Chase, Charles	55403	612-472-2758
Bracken, J.A. (Jim)	R3T-2	204-269-6484	Chase, Larry	55426	612-922-5347
Bracken, William M.	55340	612-478-9832	Chatterjee, Jane & Subir	55437	612-888-9447
Bradbury, Marty L.	55427	612-545-6407	Chelgren, Theodore D.	55337	218-525-4001
Brainerd Sr. High School	56401	N/A	Cherba, Richard J.	55364	612-472-3181
Braley, Gary	55421	612-633-4451	Cherreny, Paula	55420	612-888-3578
Brand, Gerry M.	55040	612-444-5445	Chesin, Jack & Rosalyn	55447	612-473-3902
Brattain, Kurt A.	55108	612-647-1426	Chiappetta, Michael A.	55106	612-774-0778
Braun, Virginia	55075	N/A	Child, William C., Jr.	55057	507-645-9484
Break, Roger	55372	612-447-2949	Chorn, Erwin J. (Erv)	55408	612-825-2258
Bredlow, Gregory P.	55441	612-546-6874	Christensen, Dean L.	55316	612-425-1356
Brightman, Robert H.	53130	414-425-3929	Christensen, H.S.	55435	612-941-8898
Brogmus, Brian J.	55112	612-483-1054	Christensen, Larry, MD	56164	507-825-2220
Brogren, Roy H.	55042	612-777-3564	Christensen, Lowell	55378	612-447-8519
Brokering, T. Mark	55407	612-823-2585	Christenson, David D.	55435	612-926-8984
Brown, Arthur E. Company	56308	612-762-8847	Christenson, S.V. (Van)	55436	612-933-8912
Brown, Arthur R.	54011	N/A	Christopherson, James E.	55112	612-636-8329
Brown, E.B.	55124	612-432-7057	Chun, Raymond E.	55113	612-484-0510
Brown, R. Charlie	55976	507-533-6510	Churchill, Tim R.	55337	612-432-4410
Brown, Richard L.	55124	612-423-1062	Cichosz, Jerome	55432	612-786-2495
Brucker, Heinrich K.	55435	612-944-3478	Clark, Dwayne V.	55407	612-724-8318
Brude, Debbi	55303	N/A	Clark, Michael J.	55419	612-861-8094
Bruhn, Albert S.	55106	612-774-9411	Clark, Neil M.	55435	N/A
Bruhn, Earl W.	55060	N/A	Clark, Robert C.	55105	612-690-0420
Brulan, Phillip J.	55422	612-533-5173	Clark, Robert K.	55441	612-546-1754
Bryan, Steve	55413	612-331-3803	Claude, Frank W.	55441	612-544-8095
Buchanan, Bruce F.	55420	612-884-9655	Cleveland, Ronald M.	55369	612-425-6009
Buchholz, Charles	55417	612-729-8653	Coats, David K. & Kristin	55408	612-870-1820
Buchler, Dan B.	55337	612-890-5051	Cody, Craig J.	55428	612-786-8329
Buck, Dr. Martin	55904	507-285-0754	Cole, Carol	56013	507-526-5007
Buckley, Kevin E.	55116	612-699-7462	Coleman, Dan L.	55435	612-941-3713
Buehrer, Doris	55108	612-645-6457	Confer, Ogden P.	56002	N/A
Buell, Charles D.	55391	612-474-4916	Conklin, David J.	55082	N/A
Buending, William A.	55343	612-935-7255	Connors, Robert M.	55075	612-455-8921
Bukowski, James	55107	612-227-6496	Conroy, Del G.	55105	612-224-4486
Bulba, Louis	55403	612-371-7954	Constans, Sherry	55337	612-894-1312
Burk, Janice & Verne T.	55418	612-788-8916	Cook, Al	55122	612-454-8453
Burkholder, Ann E.	55104	612-646-1164	Coop. Educ. Sev. Agcy #5	54740	715-425-6074
Burmester, Jack H.	55110	612-483-5361	Cooper, Lorna L.	55318	612-448-3537
Burns, James T.	55441	612-544-1750	Copeland, John R.	55447	612-475-3017
Burton, Richard H.	55438	612-546-7129	Copeland, Julie W.	55414	612-378-9429
Butani, Shail J.	55112	612-482-8724	Copes, Lawrence E.	55075	612-451-3720
Butler, Zona	55107	612-291-7587	Corson, Wilfred A. (Will)	55410	612-922-7128
Byhre, Otto V.	55424	612-924-1770	Corwin, Gregg M.	55426	612-544-7068
Bykowski, James J.	55113	612-645-8982	Coursen, Robert D.	55416	612-920-8120
			Court, Arnold F.	55344	612-941-0899
			Cowles, Russell	55405	612-374-5910
			Coyne, Terence	55102	612-291-1137
			Crabtree, Ben B.	55424	612-920-6316
			Craig, William P.	55343	612-938-8020
			Cree, Mark U.	55303	612-780-5688
			Crenshaw, Donald G.	55407	612-825-8724
Cabrinety, Stephen M.	55435	612-941-4849			
Calin, Bruce D.	55408	612-825-8505			
Cammack, William R. (Bill)	55107	612-222-8116			
Cape, Robert M.	55014	612-786-1187			



Crewe, Nancy M.	55406	612-721-5820	Dwarakanath, Rajarao	55438	612-941-2864
Cross, John D., Jr	55423	612-861-3731			
Crowe, Ronald K.	55432	612-784-9237			
Cucchiara, Brett	55904	507-289-7663			
Cummings, Ken	55433	612-755-7236	Eagle, Jon R.	55437	612-888-2461
Cummings, Kimball C.	55424	612-926-3234	Eaton, Patricia (Pat)	55418	612-789-5669
Currier, Ray G.	55433	612-784-6607	Ebeling, Brian T.	55438	612-920-4676
Currier, Ross A.	55406	612-722-6833	Eberlein, Allen	55418	612-789-8395
Curti, Peggy A.	54022	715-425-9003	Eckblad, Steven M.	56301	612-252-6657
Curtis Lee Acc.Ser., Inc	55391	612-473-5099	Edmunds, Peter	55419	612-823-9482
			Edmundson, John L.	55104	612-647-9939
			Educational Service Centr	55413	N/A
D.E.M. Engineering	55431	N/A	Edwards, Bruce M.	55426	612-933-3416
Dahl, Mark V.	55343	612-933-5126	Edwards, Kent R.	55120	612-452-4956
Dahlquist, Alfred J.	55443	612-560-9086	Edwards, Lonnie C.	55987	N/A
Dalton, John W.	55417	612-827-1690	Edwards, Richard F.	55124	612-432-5267
Danek, Lawrence G.	55429	612-535-6191	Edwards, Sandra J.	55435	612-941-2598
Darnay, Arsen	55343	612-933-0399	Edwards, Thomas W.	55410	612-927-6790
Dave'S Shoe Repair	55431	612-941-3822	Edwards, Verlan	55421	612-571-4935
Davern, Marilyn	55118	612-455-1317	Edworthy, Thomas	55421	612-571-7999
David, Connie	55408	612-823-3862	Egan, Thomas H.	55075	612-455-7727
Davidson, Douglas L.	55123	612-452-3278	Ehlers, Wesley W.	55418	612-789-8152
Davidson, Jim	55121	612-452-6773	Eiber, T.G.	55101	612-731-3169
Davidson, Robert W.(Bob)	55441	612-545-8478	Eisenzimmer, Leo	55440	612-566-5568
Davis, Harry	55802	218-727-3058	Ekstrom, Phyllis J.	85224	612-835-2720
Davis, Ronald P.	55944	507-634-7880	Eldred, Douglas K.	55112	612-636-8162
De Caster, Mike	55116	612-698-2969	Elias, Donovan L.	55432	612-786-3915
De Coursey, Bill L.	55421	612-574-9062	Eliason, Bob M.	54880	715-392-6087
De Mann, Ronald D.	55105	612-698-6324	Ellert, John K.	55438	612-944-6339
De Mille, Doug	55356	612-476-1844	Ellingson, Luther J.	55344	612-941-0532
De Weerth, Eldon	55431	612-831-1284	Elliott, C.L.	55410	612-926-9305
De Witt, Richard G.	55364	612-472-7282	Ellison, George P.	55009	507-263-2586
De Young, Gordon A.	55343	612-935-1175	Ellsworth, Jeff	55337	612-894-7527
Dean, Andrew G.	55403	612-374-1877	Elmer, Tim C.	55344	612-937-1548
Deeb, Robert J.	55075	612-457-0987	Elwell, Donald F.	55436	N/A
Deegan, James P.	55812	218-724-6838	Emmons, Mike J.	55316	612-427-6516
Degnan, John M.	55438	612-944-1125	Empanger, Daniel J.	55418	612-788-4370
Deitch, James C.	55438	612-944-1863	Enberg, James L.	55427	612-544-9403
Delaney, William	56220	507-223-7725	Engelmann, William H.	55417	612-724-2230
Deller, James E.	55431	612-888-6389	Engle, William (Bill)	55104	612-722-6181
Demeules, Bob J.	55408	612-824-6721	Engstrand, Ray	55119	612-487-1584
Dempsey, Matt	56073	507-354-5435	Engstrom, Clarence M.	55420	612-888-9365
Denny, Ralph H.	55412	612-522-5204	Erickson, Don J.	55011	612-753-3464
Derr, Dave	55430	612-560-7472	Erickson, Linda & Jim	55117	612-482-1578
Detmer, Wayne F.	55110	612-426-4188	Erickson, Mary	55419	612-861-8090
Dewar, Darrell	55016	612-459-3843	Erickson, Renwood (Woody)	55124	612-454-1281
Dewey, Tom	55426	612-831-5242	Eshenaur, Walter C.	55108	612-645-9325
Dickson, Dave	55332	507-426-7322	Esmay, Joel L.	56472	218-543-4511
Dillman, Daniel G.	56301	612-253-5146	Ester, Kenneth R.	55442	612-559-5422
Dimatteo, Tom A.	55432	612-786-9675	Eubank, Eugene O. III	55419	612-926-7726
Dixon, Lynn-Systems	55440	612-377-6819	Evans, Steven R.	55429	612-535-3756
Dock, Charles (Bud)	55125	612-735-8464	Ewing, Beverly & Stephen	55419	612-827-5140
Dock, Peter L.	44410	N/A			
Docken, George & Nancy	55418	N/A			
Dohrmann, Rich -M.S.1878	55402	612-934-5157	Falink, Norma Jean	55433	612-755-8075
Dokka, Margaret L.	55416	612-926-7847	Falls, Robert B.	55416	612-922-4681
Dolan, Steven M.	55345	612-935-3681	Farmer, David E. III	55104	612-644-0204
Dolney, Dennis	55407	612-721-2785	Farrell, Patrick A.	55437	N/A
Dolney, Mary & Gerald	55103	612-488-8142	Fasching, Alan	55364	612-472-2744
Donaldson, William H.	55407	612-724-3378	Fears, Carl R.	55112	612-633-3482
Doughman, Donald J.	55436	612-920-1265	Fei, Linda & Jack C.	55104	612-647-1103
Douglas, John R.	55330	612-441-1522	Feldshuh, David, MD	14853	612-447-8026
Dovenberg, David E.	55447	612-473-0026	Feldsien, Lawrence F.	55112	612-484-9055
Doyle, Michael C.	68130	402-334-5460	Fellows, William E.	55418	612-789-5631
Doyle, Thomas F.	55420	612-884-8812	Ferens, Joseph A.	55431	612-884-6028
Draeger, Gary R.	55423	612-869-4006	Fesler, Daniel L.	55119	612-739-3295
Draskovich, Emil	55775	218-885-2486	Field, Brigham G.	55345	612-935-2017
Driscoll, James	55123	612-454-8503	Field, John A.	55391	N/A
Drury, Alton G.	55303	612-427-1934	Field, John W.	55124	612-432-8915
Dueck, Rodney R.	55424	612-926-4612	Filreis, Brian	55337	612-890-2821
Duncan, James M.	55407	612-721-3273	Findell, Donald H.	55432	612-571-0467
Dunn, James P.	55110	612-483-2366	Fine, S.J.	55411	612-529-6753
Duprey, James N.	55435	612-941-2334	Finney, Harlan R.	55113	N/A
Dust, James	55343	612-933-8117	Fischbach, Lee	55441	612-546-3421



Hald, Rodney D.	55337	612-435-2469	Hernz, Robert J.	55427	612-545-5955
Halden, Peter C.	55042	612-770-6624	Herzog, Phillip H.	55124	612-432-5025
Hale, Henry E. Iv	55345	612-934-3255	Hess, Jim	55446	612-559-4598
Halgrim, Virgil H.	55432	612-571-2353	Hess, Leona F.	55110	612-484-8777
Hall, John W.	84604	612-646-5946	Hest, John A.	56549	218-483-4507
Hall, Orvin J.	78552	612-852-7536	Hetterick, David R.	55410	612-922-1919
Hall, Rollin D.	55426	612-938-0321	Hickok, Matt	55391	612-473-3324
Halldin, Willard, Jr	55447	612-473-7971	Higby, Porter	55369	612-420-3649
Hallock, Linda	55102	612-291-9177	Hilla, Ellen	55337	612-890-2374
Halls, Roger D.	55112	612-631-9236	Hille, Lawrence S.	55432	612-571-5736
Halzle, Dick	55345	612-935-5900	Hilpisch, William P	55110	612-429-4937
Ham, George A., Jr	55428	612-535-5632	Hilpisch, William P.	55110	612-429-4937
Hamelink, William B.	55438	612-835-4880	Hinck, Paul E.	55443	612-560-8627
Hammer, Rollie M.	54022	715-425-2341	Hinds, Thomas R.	55112	612-786-7741
Hammond, Daryl	55125	612-487-1002	Hines, Alan C.	55432	612-571-1196
Hancock, Allan B.	55369	612-420-5959	Hinkie, Ric	55447	612-475-2310
Hand, Elizabeth R.(Beth)	55435	612-944-9562	Hinrichs, Earl & Karen	55104	612-645-3918
Handberg, Lowell M.	55072	612-245-2369	Hintz, Elfrieda	55125	612-436-6643
Hannah, Mary K.	55331	612-471-9728	Hixson, Joel D.	55447	612-475-2681
Hannibal, Wayne R.	55438	612-941-8257	Hochhalter, Michael R.	55085	612-437-2506
Hansen, Gregory L.	55444	612-566-2050	Hochrein, Wayne E.	55317	612-934-0536
Hansen, John L.	55337	612-890-3769	Hocker, G.Ben	55345	612-934-3025
Hansen, Lorna	55337	N/A	Hockert, Robert	56320	612-685-3006
Hansen, Stephen W.	55447	612-476-1963	Hofer, Fred D.	55112	612-631-3161
Hanson, Donald R.	55447	612-473-8145	Hoel, Jeffery W.	55102	612-690-5922
Hanson, James	55356	612-475-2346	Hoffman, Charles E., Jr	55337	612-432-6144
Hanson, K.Lyle	55424	612-926-7814	Hoffman, Frederic C.	56358	612-556-3470
Hanson, Margaret	55364	612-472-1423	Hoffman, Kenneth	55423	612-869-7107
Hanson, Ron	56082	507-931-4291	Hoffman, Shirley A.	55395	612-485-4233
Hanson, Warren	55108	612-646-4538	Hoffman, Terry J.	55421	612-781-2515
Happe, Douglas O.	55112	612-633-1635	Hofmeister, Roger J.	56001	507-388-7451
Harden, Wesley (Dick)	55438	612-944-3124	Hogie, Kevin A.	55412	612-529-1471
Harmon, Hubert N.	55112	612-636-5716	Hohmann, Michael A.	55410	612-922-2936
Harms, Gordon E.	55369	612-420-2767	Hoiby, James J.	85358	602-684-2622
Harms, Mervin	55368	N/A	Hokans, Charles C.	55337	612-894-3556
Harnit, Bonnie L.	55343	612-935-7743	Holm, Douglas A.	55407	612-545-2754
Harrah, Robert C.	55337	612-435-3541	Holmberg, Raymond A.	55407	612-724-3807
Harren, Thomas	55369	612-425-8459	Holmen, Glenn A.	55301	612-497-3945
Hart, Patrick V.	56097	507-388-3009	Holmen, Ted	55901	507-282-9103
Hart, Richard W.	56301	612-251-1041	Holmquist, Michael W.	55337	612-890-5617
Hartzell Corporation	55114	612-926-9155	Holmstrom, David L.	55421	612-784-6788
Hassett, Bob N.	55114	612-647-9729	Holstrom, Melvin L.	55420	612-854-6291
Hatfield, Gene	55429	612-935-3492	Holterman, Eric F.	55408	612-822-8528
Hatfield, Richard D.	55122	612-452-2814	Hom, Edwin S.	55337	612-890-8752
Hatula, Leo	55441	612-545-8225	Hook, John A.	55337	612-435-6281
Hauer-Lowe, Keith	55417	612-824-8026	Hooper, Stanley B.	55055	612-459-7915
Hauge, Duane S.	55068	612-432-7855	Horne, Harold J.	55438	612-941-3411
Hawkinson, Douglas	55391	612-471-7662	Horner, La Vonne J.	55118	612-698-8056
Haycraft, Brad R.	55372	612-445-4387	Hornung, Josephine A.(Jo)	55435	612-922-7665
Headley, Russell K.	55123	612-454-3199	Hotze, John K.	55343	612-934-1281
Headley, Sara	55408	612-822-1396	Hou, Scott Y.	55113	612-487-0456
Healy, John M.	55435	612-941-2439	Houle, James H.	06489	203-621-7407
Healy, Stephen J.	55409	612-925-4127	Houston Indep.School Dist	77056	N/A
Hed, Virgil C.	55436	612-929-9771	Hovey, Gerald R.	55106	612-776-6588
Hedlund, Patricia P.	55112	612-483-0507	Howard, Mike	56301	612-251-7721
Heeter, Joyce K.	55345	612-938-1114	Howe, James A.	55337	612-890-5067
Heiberg, Mark	55418	N/A	Howe, Paul H.	55124	612-431-7977
Heichert, Richard E.(Rich)	55119	612-738-5963	Howe, Thomas L.	55422	612-533-2626
Heid, Toger S.	55337	612-890-7184	Howes, Mark W.	55105	612-698-4285
Heidelberg, Kenneth E.	55419	612-822-9532	Hoyan, M.Janice	55108	N/A
Heider, David A.	55105	612-224-2117	Hoyer, Chuck G.	55423	612-866-3706
Heim, Kenneth F.	55407	612-729-1690	Hoyme, Richard	55442	612-559-0081
Helberg, Howard H.	55437	612-831-4554	Hreha, Richard	55416	612-922-0203
Helgeson, Ron	55343	612-935-5224	Hruby, Dennis	55430	612-522-8803
Helmers, John I.	55976	507-533-8265	Hsu, Sung-Peng	55123	612-454-7422
Helvick, Allen K.	55337	612-890-1020	Hubbell, Jaymes G.	55117	612-489-4713
Hemingson, R.M.	55110	612-481-1445	Huber, S.	55431	612-888-8180
Hendrickson, Jim E.	55108	N/A	Huck, William	55110	612-426-2545
Hendrickson, Nancy & Mark	55406	612-724-7959	Hulett, Jackie	55124	612-432-1839
Henn.Tech Ctrs-No.Campus	55445	N/A	Hull, Mark	55421	612-571-1781
Hennessey, Alice	55369	612-425-8981	Hum, Barbara A.	91601	N/A
Hepker, Larry L.	52341	N/A	Humphrey, John R.	55416	612-920-9712
Heppelmann, Donald	55117	612-771-5887	Hutchins, Donald G. & Pam	55337	612-432-2969
Hermanson, Arnold N.	55443	612-561-9157	Hyland Cottage, Inc.	55437	612-835-7675

Ibrahim, Shukry K.	55431	612-884-0608	Kalmoe, Bruce I.	55369	612-425-0073
Ideson, Alison B., Vi	55105	612-699-9264	Kalvoda, Francis J.	56201	612-235-5777
Indian Head Library Syst.	54701	N/A	Kampf, Gary B.	55438	612-941-4479
Ingham, William S.	55421	612-571-4931	Kannan, Raghu	55337	612-890-3046
Ingvaldsen, Russell E.	55418	612-781-3847	Karker, James A.	55125	612-739-0831
Irish, William J.	55101	612-774-2595	Karl, Thomas A. (Tom)	55103	612-644-0554
Isaacson, Rod	55378	612-447-2930	Karol, Dr. Robert L.	55416	612-920-9095
Iverson, Terry & Barb	55372	612-447-3252	Kasper, Eugene M.	55435	612-941-5490
			Kasper, Lee	55301	612-497-2413
			Kassel, James W. (Jim)	55105	612-224-0514
			Kassel, Paul A.	55437	612-831-3062
			Kaste, Ray R.	55422	612-588-2523
			Kawalek, Dora	55408	N/A
Jackson, Paul L.	55404	612-874-1956	Kay, Neil E.	55427	612-546-7587
Jacobsen, Martha L.	55435	612-835-7206	Kayser, Terry F.	55431	612-831-1623
Jacobson, James L.	55420	612-888-5253	Keebler, Jim S.	55391	612-476-1906
Jacobson, Steve J.	55441	612-559-5335	Keegan, Terry M.	55424	612-926-6119
Jacobson, Vincent	55343	612-933-2426	Kegel, Stanley H., Jr.	55436	612-920-1715
Jacoby, John S.	55424	612-920-0306	Kehl, Stan E.	55402	612-922-8409
Jacoby, Patrick	55108	612-488-3683	Keim, Douglas K.	55113	612-633-9177
Jaeger, James	54501	715-282-5398	Keiser, Ken	55110	612-426-4668
Jaeger, Mark R.	55421	612-572-9188	Kelberer, J. Michael	55436	612-935-7321
Jaehne, Andy S.	55427	612-544-0901	Keller, Randy	55103	612-436-5867
James, John T.	55345	612-474-7352	Kelley, Gerald B.	55057	507-663-0180
Jankoski, Jim	55423	612-866-0788	Kelley, Marilyn J.	55436	612-922-3675
Janzig, Roger	55410	612-926-3495	Kelly, Jim	55116	612-690-4214
Jarmuz, Michael	54016	715-386-5030	Kelly, Kent	55317	612-934-5534
Jarvis, Robert W.	55407	612-729-5513	Kelly, Naomi M.	55119	612-770-1293
Jensen, David P.	55410	612-922-0333	Kelsey, Robert C.	55113	612-633-6102
Jensen, Jean M.	55337	612-890-6520	Kemmerling, Robert	56301	612-252-9877
Jensen, William C.	55401	612-338-0002	Kemp, Jane M.	55406	612-729-3427
Jochum, Joseph F.	55416	612-377-6479	Kennedy, Charles G.	55075	612-455-3919
Johnson, Algernon H.	55410	612-922-9395	Keppel, Steven M.	55104	612-881-1791
Johnson, Allan	55418	612-788-4936	Kerber, Gary L.	55345	612-933-4632
Johnson, Brad	55426	612-545-2080	Kettering, John	55406	612-722-2608
Johnson, Bradley S.	55107	612-227-6883	Keyes, Charles L.	55025	612-464-6087
Johnson, Carol Linnea	55432	612-784-6969	Keyser, Earl	55110	612-429-5570
Johnson, David M.	55444	612-560-1743	Kidder, Corbin S.	55102	612-227-5171
Johnson, Duane R.	55369	612-425-4620	Kieffer, Mark J.	55428	612-533-9744
Johnson, Earl H.	55112	612-482-9949	Kilbane, James A., Jr	55331	612-474-6577
Johnson, Eldon W.	55123	612-454-7465	Kimball, Toby	55403	612-338-8629
Johnson, Florence M.	55427	612-544-8504	King, Brad	55044	612-469-3812
Johnson, John H.	56301	612-253-7136	King, John	55435	N/A
Johnson, Mike A.	55104	612-645-1377	King, William C.	55033	612-437-2161
Johnson, Mr. & Mrs. Stanley	55331	612-474-7167	Kingsbury, Dale P.	55117	612-483-2100
Johnson, Reese C.	55401	612-339-5119	Kinney, Kenneth C.	55047	612-433-3954
Johnson, Richard L.	55447	612-473-2939	Kirby, Russell B., Jr	55082	612-439-4319
Johnson, Roberta & Gary	55110	612-770-5931	Kirk, Joe	55075	612-451-0291
Johnson, Stephanie	55327	612-425-8117	Kissick, Lake N.	55454	612-332-5648
Johnson, Stephen K.	55419	612-869-3447	Kistner, Joan C.	55437	612-835-0641
Johnson, Steven F.	55014	612-786-3028	Kitchak, Gregory	55391	612-475-1275
Johnson, Steven J.	55124	612-432-2476	Kittell, Bonnie	55423	612-869-3826
Johnson, Ted A.	55441	612-546-2852	Kjar, Dennis L.	55057	N/A
Johnson, William R. (Bill)	55406	612-724-5372	Kjorsvig, Sally A.	55369	612-424-2634
Jondal, Frank D.	55113	612-488-9349	Klausler, Thomas	55044	612-469-5120
Jones, C.R. (Bob)	55420	612-888-5623	Kleiber, John A.	55435	612-944-3704
Jones, Jerry	55343	612-933-3086	Klein, Charles J.	55337	612-890-6813
Jones, John H.	55406	612-721-4275	Klein, George P.	85351	N/A
Jones, L. Lavon	55345	612-474-1488	Kline, George E.	55417	612-824-6004
Joseph, Irving	55104	612-645-0899	Kline, Mark	55767	218-485-8456
Joseph, Richard M.	55343	612-938-7360	Klocke, Arnold W.	55431	612-884-6631
Josephs, Elmer	55423	612-861-2162	Klosinski, George J.	55057	507-652-2977
Jossman, James R.	55433	612-757-7482	Knowles, Gary R.	55112	612-636-1152
Judd, David A.	55123	612-452-6765	Knox, Charles S.	55110	612-484-9537
Juliber, Curtis B.	55117	N/A	Knudson, Cal L.	55025	612-464-7898
Jurkovic, Samuel M.	55112	612-633-5146	Knudson, Wayne E.	55441	612-544-7322
Jury, Kenneth E.	52001	319-588-2167	Knutson, Robert E.	56001	507-387-5197
			Koenig, Hans J.	55409	612-825-4395
			Kogel, Paul D.	55124	612-423-4344
			Konrad, Glen D.	55409	612-824-1085
Kaemmerer, Bill F.	55419	612-823-9003	Koop, Chuck H.	56301	612-251-1785
Kahn, Arnold C.	55432	612-574-0846	Kooy, Elmer D.	55345	612-473-8153
Kaiser, Dan	55416	612-920-4453	Kos, Ronald J.	55422	612-537-3939
Kalantari, Michelle	55424	612-920-1413	Kostial, Barbara	55391	612-473-4532
Kaldun, Gary L.	55075	612-450-0153	Koxlien, Alan R.	56013	507-526-3516
Kalina, Larry J.	55106	612-776-0173			



Mentjes, Kathy	56057	612-357-6310	Nelson, Robert	55117	612-488-7351
Merry, Thomas A.	55426	612-922-2087	Nelson, Robert D.	55423	612-866-3957
Mersy, Dave J.	55447	N/A	Nelson, Scott B.	55112	612-636-2972
Meyer, Alex J.	55369	612-424-2571	Nelson, William F.	55031	612-437-7194
Meyer, Charles R.	55435	612-941-8769	Neren, Michael I.	55105	N/A
Meyer, Dennis	55364	612-472-5023	Nesser, Todd	55401	612-521-8839
Meyer, Roger L.	55344	612-937-9855	Nettell, Scott M.	55423	612-869-4718
Meyers, Miriam	55405	612-374-5581	Neuenschwander, Chuck R.	55121	612-452-7474
Meyers, Robert R.	55447	612-475-1166	Newcomb, David R.	55369	612-420-6120
Michel, David D.	55408	612-871-1673	Newmark, Richard A.	55119	612-735-4541
Midje, Howard C.	55118	612-457-2028	Newquist, Ronald E.	55316	612-421-1067
Mielens, Paul M.	54751	715-235-6026	Newstrom, Terry L.	55419	612-827-3159
Miles, Daniel W.	55414	612-623-9850	Nichols, Rick	55410	612-922-2219
Militello, Thomas E.	90274	213-541-2766	Nichols, Robert A.	55014	612-784-0866
Mille Lacs Cnty Area Dac	56353	612-983-2162	Nicholson, Tim	55112	612-483-1085
Miller, Daniel F.	55406	612-722-2674	Nicometo, Michael (Mike)	49801	906-774-5532
Miller, Don P.	54022	715-425-6800	Nielsen, David R.	55345	612-935-2588
Miller, Gary L. & Dace	55089	612-388-5632	Nielsen, Donald G.	55422	612-533-6222
Miller, Keith N.	55109	612-777-0109	Nieman, Dennis & Carolyn	55359	612-479-2097
Miller, Robert C.	55110	612-484-7883	Nigro, Beth	55431	612-881-8958
Miller, Steve F.	55442	612-553-1812	Nimchuk, Steve W.	55431	612-881-8656
Miller, Wes	55117	612-489-3933	Niswander, David L.	55045	612-257-1338
Mills, Frank S.	55418	612-789-7656	Nollan, James	55119	612-731-2016
Minnesota Dept Of Health	55414	N/A	Norback, Judy	55435	612-927-5537
Miranda, Rocky V.	55405	612-374-9424	Nordberg, Daniel A.	55427	612-544-3810
Miron, Gregory L.	55124	612-432-3560	Nordrom, David D.	55408	612-822-9509
Miskowicz, Delores	55401	N/A	Nordvall, David	55417	612-724-9174
Mohn, Gary A.	55410	612-926-2817	Norris, Janelle A.	55410	612-920-1430
Moline, Arlett E.	55437	612-835-3296	North High Sch. Media Ctr	55411	612-588-0871
Mollien, Jon L.	55337	612-890-8182	Norton, John R. III	55303	612-427-9199
Montzka, Jeffrey	56013	N/A	Nowicki, Dennis M.	55119	612-731-1566
Moore, Roger	55345	612-938-1601	Nowlin, Dr. Duane	55112	612-636-2990
Moow, Jae	55391	612-476-1184	Nunne, William H.	55416	612-927-7358
Moran, Jack	55424	612-920-0558	Nygren, Rod	55113	612-484-4587
Moran, John P.	55105	612-699-0047	Nys, Bob L.	55435	612-831-2911
Moreno, Karen S.	55317	612-474-4470			
Morris, Charles H.	55433	612-755-7834	O'Brien, David	55337	612-894-2747
Morris, Henry B.	55427	612-544-6341	O'Brien, Don J.	55344	612-941-5296
Morris, James R.	55024	N/A	O'Brien, Douglas, Jr-Princ	55441	N/A
Morris, Richard H. (Rick)	55407	612-822-0842	O'Brien, Joseph G.	55113	612-645-1227
Morrison, Duncan C.	55337	612-435-2571	O'Dell, Loren H.	55345	612-933-4869
Morrison, Norm G.	55441	612-544-3598	O'Fallon, David	55409	612-827-6971
Mortenson, Jerald H.	55438	N/A	O'Glasser, Lawrence	55406	612-721-5641
Mory, Patricia W.	54011	715-273-3261	O'Halloran, John D.	55116	612-690-1362
Moses, Curt D.	55421	612-574-9744	O'Hearn, Michael (Mike)	55410	612-920-3929
Motchenbacher, Curt D.	55345	612-938-6647	O'Laughlin, Tim	56011	612-873-6477
Motzko, Daniel T.	55416	612-922-5708	O'Malley, Lt. Col. James F.	54016	715-386-9438
Muehlbach, James	55107	612-293-0140	Ochs, James	55443	612-560-5113
Mueller, Don L.	55447	612-473-0463	Oehrle, Gary F.	55410	612-926-3257
Muenkel, Brian J.	55374	612-420-2148	Oelfke, Kenneth	55339	612-467-2083
Mullaly, Lawrence A.	55420	612-854-8718	Oeltjenbruns, Gerhart D.	55337	612-890-4025
Munnich, Lee W., Jr	55402	612-374-1854	Ogborn, Clarence E.	55303	612-753-1698
Munson, Edward D.	55106	612-771-5844	Ohno, Tom T.	55431	612-831-5869
Munson, Leonard L.	55113	612-488-2695	Ohnstein, Tom R.	55113	612-636-4595
Munson, Pierre	53703	608-251-7671	Okronglis, Jeff	55117	612-483-3974
Murphy, Michael	55116	612-699-7923	Olafson, Gerald (Jerry)	55416	612-926-3293
Murphy, Michael P.	55119	612-776-0068	Olesen, Randal V.	55343	612-933-1643
Murray, Stanley T.	55435	612-920-5951	Olmon, David G.	55110	612-770-2785
			Olson, Walter "Skip"	55407	612-729-0087
N/W Vocational Coop Ctr	56701	N/A	Olson, Alan	55433	612-427-7190
Naples, Tom	55433	612-755-6445	Olson, Alan G.	55418	612-781-6795
Nastrom, Christopher	55431	612-881-3491	Olson, Bradley	55119	612-482-7889
Nau, Richard H.	55417	612-721-3461	Olson, C. Kent	55359	612-479-2708
Nedbalek, James R.	55345	612-934-3531	Olson, Gene H.	55419	612-824-9108
Neigebauer, Daryl A.	55060	507-451-4865	Olson, Gerard L.	55437	612-831-1145
Neima, Cherie	55103	612-645-7593	Olson, Herbert E.	55416	612-926-1968
Nellis, Joyce	55112	612-633-8467	Olson, Joseph O.	55408	612-825-2237
Nelsen, Lenn	55122	612-452-2981	Olson, Paul E.	55337	612-894-2309
Nelson, Alano W.	55021	507-334-9325	Olson, Reid H.	55417	612-827-8972
Nelson, Barbara	55423	612-861-1038	Olson, Richard J.	55429	612-536-9938
Nelson, Barry	55117	612-489-1175	Olson, Scott	55075	612-457-5716
Nelson, Bob K.	55407	612-724-8680	Olson, Scott T.	55414	612-623-9735
Nelson, Gregory S.	55433	612-757-7469	Olson, Steven H./Lester L	55113	612-454-9628

Oordt, Darwin	56013	507-526-7324	Pose, L. William	55117	612-489-6817
Oostendorp, Elizabeth J.	54022	715-425-5497	Post, Richard E.	55427	612-533-1896
Ostertag, Thomas	55108	612-488-9979	Posters, Henk	55440	612-473-2281
Ostrov, Dr. C.S.	55427	612-544-6459	Preves, David A.	55435	612-941-5989
Oswald, James P.	55109	612-777-1830	Prickett, Sharon	55008	612-689-3617
Otremba, Duane	56301	612-253-2295	Provart, R. Wayne	55421	612-788-8760
Ottoson, Kerry O.	55110	612-426-8116	Puncochar, Bob P.	55369	612-420-3863
Ottoson, Ron	55408	612-871-7743	Putrich, David J.	55423	612-866-9473
Ozols, Juris & Paula	55344	612-941-8299			
Padden, John R.	55316	612-427-9037	Qualey, Terry K.	55110	612-777-6915
Paquette, John X.	55082	612-430-1863	Quammen, David S.	55391	612-473-9071
Parent, Beverly A.	55337	612-894-2776	Quan, Dennis A.	55014	612-482-7975
Park, John E., Sr.	54853	715-825-2540	Quickstad, Donald A.	56353	N/A
Parkin, James W.	55337	612-890-2614	Quimby, Charlie R.	55409	612-822-1661
Parson, Ronald F.	55112	612-483-3917	Quinn, Judy & Arthur A.	55379	612-445-7715
Patterson, Paul G.	55421	612-574-9424	Quist, Michael	55416	N/A
Patterson, Robert P.	55421	612-788-4860			
Patterson, Timothy	55406	612-729-3816			
Paulson, Gerald	55420	612-888-2111	Radde, Bob T.	55369	612-420-5186
Paus, Glenn H.	55406	612-722-6477	Radford, Michael J.	55418	612-789-9152
Pavlisich, Ernest J.	55316	612-427-8123	Radke, Harold Wm	55112	612-633-1992
Pawlik, John J.	55429	612-537-5185	Rafferty, Patrick	55416	612-922-8746
Payne, William B.	55402	612-374-2931	Raines, John Richard	55105	612-699-4943
Pearson, Allan E.	55418	612-789-7924	Ramler, Donald W.	55016	612-459-3481
Pearson, Fred	55407	612-825-5411	Ramos, Tom P. & Mary	55112	612-786-4907
Pearson, Robert J.	55369	612-559-3510	Rankin, Christine (Tina)	55124	612-432-7427
Pedersen, Karen S.	55414	612-379-1896	Rantapaa, Larry A.	55108	612-646-3044
Pehler, James F.	56301	612-251-0350	Rapp, Stan R.	55119	612-738-1844
Peik, Richard A.	55418	612-789-9351	Rasmussen, Dave C.	55345	612-938-7348
Peitersen, Larry A.	55318	612-448-2058	Rasmussen, Dr. Carl	55112	612-636-1235
Peitz, Paul J.	55429	612-560-9370	Rasmussen, George	55391	612-471-7550
Pelleg, Adrienne	55345	612-938-2098	Ratliff, Jerry L.	55104	612-647-0783
Peltier, Gary A.	55105	612-224-3201	Ray, Charles D.	55391	612-475-2000
Pelton, Joe E.	55038	612-426-8123	Raymond, Carolyn E.	55117	612-483-6947
Pengelly, Ken C.	56001	507-625-6731	Raymond, Ronald G.	54016	715-386-6102
Penner, Robin R.	55404	612-874-1472	Reed, Michael	55433	612-427-5249
Pepin, Nannette	55419	612-861-3997	Refsell, Stephen T.	55424	612-926-9701
Perendy, Dr. Frank	55427	612-545-1306	Regnier, Mary M. & Assoc	55437	612-888-0772
Perrin, Charles R. (Chuck)	55384	612-471-7707	Rehaume, Eugene	55343	612-935-7133
Persson, Curtis E.	55108	612-647-9783	Reich, Ronald R.	55420	612-888-7813
Peterman, Alan L.	55407	612-721-3295	Reinbold, Bob	56551	218-583-2162
Peters, Al A.	55428	612-533-0647	Reiner, Eric A.	55110	612-429-9605
Peters, Gordon G.	55337	612-435-6189	Reisdorfer, Ted	56110	507-483-2027
Peters, Matthew	56320	612-685-3576	Reiter, John G., Jr.	55431	612-888-8702
Petersen, Allan D.	55419	612-822-0774	Reiter, Sandie M.	55437	612-835-2219
Peterson, David A.	55432	612-780-2111	Reitmeier, Joseph A.	55429	612-535-0583
Peterson, Dr. S.G.	56353	612-983-2360	Reitz, Jim B.	55443	612-546-6773
Peterson, Gene A.	55421	612-571-1923	Renner, Marc S.	55106	612-778-0050
Peterson, Jeffrey G.	55429	612-566-9607	Resoft, Leroy A.	55934	507-545-2753
Peterson, Jim	55068	612-432-5549	Rettger, Father John	55433	612-757-3481
Peterson, Orin M.	55431	612-884-4447	Rettie, Melanie J.	55102	612-224-3618
Peterson, Richard A.	55082	612-439-5108	Rettke, Allan	55337	612-432-7489
Peterson, Richard H.	55356	612-473-5846	Rhoads, Philip K.	56001	507-345-7142
Peterson, Susan A.	55436	612-920-5688	Rice, Jean M.	55435	612-941-1051
Peterson, Ted A. & Nan	55331	612-474-1484	Rice, Stanley D.	55106	612-771-0949
Peterson, Thomas B.	55426	612-544-9404	Rich, Kenneth L. (Ken)	55403	612-377-4682
Pettit, Robert E.	55110	612-429-6028	Richards, Loren L.	55391	612-471-9430
Pfaff, Robert J.	55123	612-452-2541	Richards, Mark E.	55410	612-925-3625
Pharr, Matt	55416	612-922-6147	Richburg, Dottie C.	55109	612-777-7677
Phenow, Larry	55409	612-825-6068	Richmond, David	55112	612-784-3007
Philipson, Willard D.	55113	612-484-8286	Ries, Kurt W.	55406	612-729-6986
Phillips, Paul H.	55436	612-724-6273	Ring, John W.	55108	N/A
Picard, Don L.	55337	612-894-3431	Ringsmuth, Frank M.	56301	612-253-6032
Piegras, James E.	55337	N/A	Ringsmuth, Tony	56387	612-252-1575
Piepho, Dale A.	55109	612-770-6079	Riplinger, Rodney F.	55047	612-433-2672
Pihl, Leif & Harry	55414	612-379-3408	Rivard, Duane J.	55113	612-484-8896
Pillen, Dolores	55109	612-777-1234	Robbins, Robert C.	55443	612-561-7336
Pipestone Indep. Sch. D. 583	56164	N/A	Roberts, Byron H.	55410	N/A
Pittner, Dave A.	55068	612-432-9251	Roberts, Cathy C.	55401	612-822-8034
Pofahl, Earl	55021	507-332-8786	Roberts, Gloria P.	55119	612-739-7519
Pooton, Tom J.	55344	612-944-6859	Roberts, Jeff	55114	612-644-7757
Popoff, Russ G.	56240	612-748-7246	Robins, Stanford	55118	612-455-9444



Robinson, James K.	56001	N/A	Schloff, Leonard D., MD	55116	612-224-7486
Roca, Joan	56001	507-625-8752	Schmidt, Ed	55437	612-831-1164
Roche, Wesley A.	55303	612-427-1522	Schmidt, Jon J.	55437	612-831-0854
Rock, Tim	55443	612-566-7643	Schmit, John E.	55410	612-927-5231
Rockford Middle School	55373	N/A	Schmitz, Peter J.	55057	507-645-8582
Rogers, John B.	55426	612-544-0995	Schneider, Raymond J.	55124	612-423-1055
Rohlfing, Fred	55410	612-920-5148	Schochet, H. Laurence	55116	612-698-7725
Rohling, Melvin M.	55113	612-483-0162	Schoepner, John C.	55075	612-455-8613
Rohricht, Thomas E.	55108	612-645-6043	Schomberg, Steven F.	55108	612-644-6090
Romig, E. Delaun	55124	612-432-6239	Schott, Owen W.	55437	612-884-4217
Roos, Amos	94133	N/A	Schreifels, Joe M.	55119	612-770-2564
Roos, Cynthia E.	55110	612-292-0535	Schroeder, Doris M.	55434	612-755-4199
Roosevelt Elementary Sch.	56001	N/A	Schrope, Donald P. Sr.	55372	612-447-3501
Roper, Dean	55379	612-445-4799	Schrock, Scott C.	55405	612-374-5494
Rose, Thomas J., MD	55082	612-426-1555	Schulte, Ronald A.	55447	612-473-9633
Rose, William C.	55429	612-537-2455	Schultz, Clayton B.	55417	612-729-0067
Rosenberg, Robert M.	55402	612-377-4300	Schultz, Keith A.	55428	612-537-3399
Rosenow, James F.	53094	414-261-2536	Schulz, Udo E. & Monika	55442	612-559-1277
Ross, Ivan	55426	612-546-6312	Schurr, David	55432	612-571-1113
Rossow, Mike	55414	612-378-2934	Schwab, Robert	55744	218-326-4261
Roswold, Douglas R.	55418	612-789-3226	Schwalbe, Raivo	55416	612-922-2906
Rothfork, Kathleen	55122	612-454-7411	Schwartz, Bill H.	55416	612-929-1815
Rourke, Mary Joan	55113	612-483-1228	Schwartz, Paul J.	55343	612-934-9717
Rubenstein, Richard	06107	N/A	Schwartz, Richard A.	55340	612-420-2577
Rucker, Richard D., Jr	55105	612-698-8435	Schwartz, Robert W.	55344	612-934-5251
Ruen, Reuben	55421	612-788-8276	Schwartz, Terry	55118	612-455-5222
Rumler, Judith B.	55435	612-941-8789	Schwendeman, Peg & Mike	55031	507-263-3801
Ruprecht, James	55409	612-827-3205	Scobey, John E.	55401	612-822-5234
Rusch, Steven A.	55337	612-894-2192	Sechrist, Sharon S.	55445	612-429-1997
Rusinak, Richard K.	55109	612-770-6258	Sechrist, Wayne K.	55038	612-429-1997
Ruud, Orville	55431	612-888-1961	Sedio, Lou & Milan	55437	612-831-4630
Ruzek, Kenneth V., Jr.	55445	612-424-2003	Seelig, Steven	55418	612-789-0813
Rydberg, Roger	55441	612-546-5368	Segar, Thomas W.	55431	612-888-7159
Rydell, Robert E., MD	55345	612-933-1019	Seifert, James	55438	612-941-5753
			Seland, Sandy J.	55417	612-721-1075
			Selvik, Rick	55413	612-378-3816
			Semler, Don	55343	612-938-4477
			Seng, Richard C.	55401	612-333-5840
Sabin, Billy E.	56014	507-653-4661	Septer, Michael P.	50401	515-423-3951
Sachi, David J.	55104	612-646-0216	Serri, Victor A.	55104	612-642-1365
Sachs, Samuel II	55403	612-377-9900	Sestak, Eleanor & John	55436	612-929-2035
Saeks, Allen I.	55422	612-339-1200	Severson, Sandra	55901	N/A
Salo, Bill	55316	612-477-5596	Severson, Terry L.	55438	612-941-1061
Salo, Wayne R.	55330	612-263-2477	Seymour, J. Larry	55409	612-823-0757
Salsbury, Roger L.	55418	612-788-5076	Shamblin, A. Kent	55001	612-221-7239
Salter, Roger G.	55379	612-445-6324	Shands, Henry L.	56560	218-236-1248
Sanderson, Wayne A.	55112	612-484-0913	Sharp, Danny	55418	612-788-0559
Sandven, Dorothy & Roger	55420	612-884-5841	Sharpsteen, Jerry L.	55337	612-890-5068
Sanford, John E.	55112	612-482-1655	Shaw, Kay	55104	612-645-5020
Santelli, James P.	61820	612-424-3577	Shea, M. Clare	55403	612-339-1007
Sarne, Heidi T.	55075	612-455-9604	Sheehan, Catherine K.	55424	612-927-7229
Sasse, Douglas J.	56002	507-345-5383	Sheehan, Martin F.	55441	612-475-1529
Sauer, Janiene E.	55431	612-830-1255	Sheets, George A.	55104	612-646-7018
Sauer, Randy J.	55441	612-545-8673	Shepherd, Beverly	54022	N/A
Savage, Richard	55112	612-484-4584	Shepherd, Stephen C.	55417	612-729-5331
Savaiano, Sylvia & Carl A	55331	612-474-8862	Sherman, Dudley M.	55125	612-738-8809
Savela, Robert R.	55104	612-645-9111	Shimp, Alton C.	55337	612-890-1426
Sawyer, Thomas D.	55433	612-757-7316	Shirley, Mary J.	55343	612-935-5604
Scaletta, Paul J.	55343	612-475-1043	Shively, W. Phillips	55108	612-644-0615
Schaefer, Gregory W.	55101	612-227-2480	Shogren, Richard A.	55092	612-462-1577
Schaefer, Jack F.	55110	612-429-5431	Shrewsbury, Carolyn M.	56001	507-625-3264
Schaefer, Robert G.	49508	616-676-9071	Siefkes, Tim J.	55436	612-938-1561
Schai, Thomas W.	55113	612-482-9033	Siegel, Dr. Leighton	55118	612-457-9259
Schapiro, Dennis J.	55408	612-823-0886	Siegel, Sarah	55423	612-866-8990
Schaub, James D.	55403	612-874-9220	Siegfried, Bruce R.	55443	612-566-4941
Schave, Ted	55437	612-835-6001	Sienko, Richard A.	55422	612-536-0523
Scheffler, Mark D.	53012	414-377-9286	Silberman, Sheldon	55422	612-377-0272
Scheible, Leon L.	55344	612-934-0040	Simek, Ginger	55120	612-454-6247
Schellenberg, Michael	55414	612-331-2020	Simmons, Carl R.	55116	612-690-2228
Schenz, James L.	55110	612-429-4931	Simon, Anthony J.	55406	612-488-8393
Scherer, Alma L.	55116	612-699-6165	Simons, Gerald A.	55431	612-881-2936
Schiller, Russell	55419	612-926-5412	Sineps, Diane	55102	612-690-3247
Schindeldecker, Charyl	55044	612-469-3795	Singer, Robert J. (Bob)	55119	612-738-3368
Schlegel, Ruthmary/Jerry	55112	612-631-2967	Sippel, William L.	55125	612-738-7178
Schlicher, David W.	55423	612-869-8262	Sjulstad, Kenny N.	55316	N/A
Schlick, Robert C.	55369	612-425-6246			



Skalbeck, Bruce A.	56301	612-251-3052	Swanson, Kenneth W.	55431	612-884-2716
Skillestad, Thomas E.	55009	507-263-4735	Swanson, Larry R.	54004	715-948-2846
Skrove, Mark	55429	612-533-8411	Swanson, Stephen	56001	507-625-4956
Slingsby, Ken	55089	507-263-3715	Swenson, Arlo B.	55437	612-830-0910
Smedman, Roger A.	55122	612-452-5131	Symmes, Steve	94941	N/A
Smith, Bruce R.	55441	612-559-9481			
Smith, Cortland	55384	612-827-6872			
Smith, Delmer L.	55435	612-941-6996			
Smith, Earl D.	55429	612-561-4885	Talbott, Michael M.	55362	612-295-4524
Smith, Glenn S.	55447	612-476-0476	Tandeski, Ray	55443	612-633-4282
Smith, John G.	55419	612-866-6428	Tangt, Robert	55428	612-533-0862
Smith, M.Wade	55409	612-825-9094	Taugog, Joel D., MD	55104	612-646-1684
Smith, M.Wiley	55420	612-881-0940	Tavernier, Paul E.	55112	612-636-0274
Smith, Philip A.	55337	612-890-1593	Taylor, Terry B.	55421	612-789-5886
Smith, Ramsey R.	55414	612-378-2775	Teeling, Robert J.	55123	612-452-4000
Smith, Robert B.	55418	612-789-3698	Teigen, Casper A. (Cap)	55418	612-789-3786
Smith, Sheila G.	55410	612-926-9538	Tenney, Quentin E.	55337	612-890-7886
Smith, Thomas L.	55418	612-781-0689	Tennyson, Roger	55433	612-757-8920
Snyder, Gene R.(Russ)	55433	612-757-3047	Terrell, W.R.	55337	612-890-7667
Solstad, Norma E.	55407	612-824-9931	Tetzlaff, William A.	55409	612-822-8656
Sorell, Jan	56377	612-252-2930	Tetzloff, John	55372	612-447-3175
Sorem, William M.(Bill)	55343	612-944-0856	Thames, Martin	55345	612-934-3517
Sorteberg, Jim C.	55303	612-690-4708	Thatcher, Walter E.	55082	612-439-1281
Sower, Gehry D.	55433	612-421-1524	Thiesfeld, Chuck W.	55431	612-831-0009
Spahn, Mike	55343	612-424-6749	Thiesfeld, Lloyd A.	77459	713-438-6837
Special Intermediate Sch	55110	N/A	Thom, Jonathan	55423	612-866-6667
Spruytte, Robert H.	55337	612-894-1362	Thomas, Daniel E.	56093	507-835-4721
Sroka, Andrey	55369	N/A	Thomas, Kathryn A.	55435	612-644-4468
St.Louis Pk.Commun.Educ	55426	612-925-4316	Thomas, Marilyn	55408	612-872-7669
St.Paul Tech.Vocat'L Inst	55102	N/A	Thompson, Floyd M.	55441	612-546-2388
Stafford, Tracy J.	55408	612-827-7553	Thompson, Roy L.	55113	612-636-3419
Stahl, Donald J., Sr.	55120	612-454-1879	Thon, Syble	54016	715-386-9652
Stanevski, Eugene F.	55075	612-451-3062	Three Village Csd	11733	N/A
Stapf, Bonnie J.	55024	612-463-8714	Tidwell, Norris W.	55419	612-825-9607
Stark, Loren	55343	612-933-7246	Tillman, David	55408	612-827-8954
Starr, Richard T.	55122	612-452-6745	Timmermans, Kevin P.	55408	612-827-0641
Steck, John O.	56093	507-835-3927	Timmons, Martin J.	55437	612-831-2883
Steele, James R.	55433	612-755-1307	Tisel, James M.(Jim)	55416	612-927-0113
Steffen, Jackie	55406	612-724-1284	Tobler, H.Gareth	55428	612-535-2391
Steil, William B.	56001	507-625-9025	Toensing, Britton A.	55429	612-537-5428
Stein, Dennis	55438	N/A	Townsend, John C.	55105	612-699-0798
Steinbauer, John E.	55124	612-884-7444	Treen, Harold M.(Chip)	55411	612-522-9101
Steinkamp, Donald W.	55435	612-927-9263	Trency, Dace L., MD	55112	612-646-1919
Stenzinger, Theodore V.	55016	612-459-3138	Trepanier, Michael F.	55443	612-566-3612
Stettler, Glenn R.	55418	612-789-5760	Triplett, Arthur R., Jr	55112	N/A
Stevens, Renee	55420	612-888-2909	Trites, Jeffrey	56551	218-583-2223
Stevenson, William L.	55413	N/A	Tromp, Marvin R.	55413	612-644-0934
Stewart, Ellen S.	55391	612-475-0513	Trost, Lawrence C.	55746	218-263-4368
Stewart, Patrick W.	55419	612-825-8226	Tuchner, John R.	55016	612-459-0316
Stiller, Paul F.	55331	612-474-3109	Tucker, Mitchell J.(Mitch	55404	612-375-1487
Stille, George D.	55427	612-544-4767	Turner, Lawrence P.	55113	612-483-1754
Stock, Larry	55405	612-374-2405	Tweedy, Donald C.	55118	612-452-8992
Storlie, Leonard O.	55124	612-432-2965	Tweit, Thomas A.	55075	612-455-3835
Storm, Frank R.	55118	612-455-3473	Tyler, Richard W.	56701	218-681-3789
Stoutenburgh, Joseph S.Jr	55343	612-933-2461			
Strand, Dale	55431	612-888-4029			
Strathman, Larry	55417	612-724-2833			
Stratmoen, Peter A.	55337	612-894-1498	U Of M Child Care	55454	612-869-0421
Stripe, Harry E.	55337	612-890-1393	Ueland, W.Scott	55414	612-623-3749
Struss, Steven A.	55447	612-473-5726	Ulstrom, Robert A.,MD	55416	612-377-7707
Stummer, John R.	55437	612-884-5486	Ulven, Lynn L.	55112	612-631-1710
Stump, Mark	55438	612-944-7829	Undlin, David W.	55124	612-432-0913
Stuppy, B.Michael	55435	612-941-8530	Urcheck, Sara Jane	55447	612-473-7499
Suchy, Cecil M.	55110	612-777-7821	Uttley, David	55812	218-728-3043
Sullivan, Steve B.	55410	612-920-8463			
Sullivan, Thomas G.	55408	612-823-7541			
Sunde, Richard W.	55418	N/A			
Suomela, Todd	55343	612-545-0556	Valtierra, Renee	55075	612-451-8066
Supel, Thomas M.	55356	612-475-3264	Van Beek, Curtis E.	55082	612-436-5786
Surine, Susan G.	55117	612-774-2224	Van De Walker, Peter G.	55303	612-786-6444
Sutherland, Karen A.	55105	612-698-2284	Van Dyne, Bruce	55391	612-473-1086
Svoboda, Franklin J.	55350	N/A	Van Havermaet, David	55421	612-572-9266
Swan, Janet & Craig F.	55408	612-374-2496	Van Nuden, Ken J.	55420	612-881-4637
Swanson, Bruce E.	55412	N/A	Vanasek, David P.	55343	612-933-5962
Swanson, Kenneth R.	56058	612-665-6057	Vanderwerf, Kevin	55344	612-934-6732

Vangsgard, Charles	56001	507-387-6345	White, Garry C.	55944	507-634-4161
Vaughan Kamla Company	55104	612-224-6496	White, Gary D.	55419	612-822-7956
Veerkamp, Timothy P.	55123	612-454-2095	White, Gregory A.	55744	612-326-6507
Velner, Richard E.	55424	612-920-8645	Whiting, Barbara L.	55343	612-938-6652
Vest, Joseph A.	55428	612-537-5844	Whitmore, Mark	55379	612-445-5568
Vetter, Steven C.	55112	612-631-3682	Whitney, Ron W.	55359	612-472-4021
Victorsen	55359	612-479-2768	Wideman, Glenn D.	55438	612-941-6462
Vidmar, David L.	55710	218-749-2960	Wiener, William T.	08620	612-291-0680
Vietz, Evelyn M.	55421	612-571-6980	Wiese, Dick W.	55436	612-929-6261
Villella, Ronald L.	55436	612-935-1307	Wigand, Richard G.	55410	612-922-5998
Vocational Biographies	56378	N/A	Wiik, John E.	55112	612-483-2592
Voet, Raymond A.	55416	612-925-2577	Wilde, Darwin	55426	612-546-5136
Vogel, Daniel F.	55109	612-776-4294	Wildes, Daniel R.	55378	612-894-9026
Voigt, Jeffries	55426	612-545-5494	Wilkening, Keith E.	55437	612-831-8356
Vollan, Siri	55066	612-388-4065	Wille, David D.	55113	612-484-8768
Volmer, C. Luminita	55438	612-941-5171	Williams, Colleen K.	55112	N/A
Volstad, O. Andrew	55402	612-429-0088	Williams, Edward	55125	612-739-8446
Vonhof, Al - Bus.Mgr	55105	N/A	Williamson, Dr. Kenneth R.	55901	507-281-4982
Vossler, Judy C.	55345	612-933-7447	Wilson, Benjamin H.	55104	612-645-4004
Voye, Regis H.	55016	612-459-4811	Wilson, Charles J.	55447	612-476-1666
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			Wilson, Paul W., Jr	55441	612-544-0493
			Wilson, William R. (Bill)	55426	612-545-8368
			Windhorn, Allen	56050	507-931-1349
			Winsor, James A.	55431	612-831-8149
			Winterhalter, Dan	55406	612-721-6732
			Wirth, Nancy & Marty T.	55429	612-561-1597
			Wiski, Donn R.	55113	612-482-0546
			Witso, Ben	55404	612-333-7508
			Wohlscheid, Francis M.	55426	612-546-0719
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			Wolken, Kimberly A.	55403	612-870-7144
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			Wolsey, Mary L.	55105	612-698-2864
			Wong, Hayward Y.	55454	612-341-0201
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			Wood, Ervin D., Jr	55422	612-588-4743
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			Woods, James F.	55112	612-636-5863
			Woodward, Frederick B.	55115	612-426-4060
			Workinger, Geof S.	55424	612-922-7152
			Worley, Tiff T.	55116	612-690-3937
			Wormwood, Earle D.	55343	612-935-7922
			Wraneshay, Michael P.	55303	612-757-6365
			Wren, James W., Sr.	55014	612-786-6557
			Wydeven, Robert M.	55122	612-452-3919
			Wynne, Earnest C. III	55345	612-935-7148
			Yaeger, Donald & Suzanne	55112	612-574-1208
			Yauger, Frank A.	54501	715-369-2377
			Yerkes, Steve, Cpa	55344	612-937-8042
			Young, A. Michael	55420	612-884-2841
			Young, Alwin C.H.	55438	612-944-8909
			Young, Robert L.	55437	612-831-5177
			Zahavy, T.	55416	612-920-4263
			Zajicek, William R.	55101	612-776-1577
			Zapolski, Robert I. (Bob)	55113	612-482-7918
			Zastrow, John W.	55343	612-933-7732
			Zerby, Judy & Mike	55432	612-571-5378
			Zetterlund, Ron	56164	612-825-5535
			Ziebol, Rodney S.	56301	N/A
			Zieffler, Fritz	56301	612-252-0977
			Ziemer, Edward L.	55902	507-288-4521
			Zimmerman, Robert L.	55345	612-934-9225
			Zins, Barbara	55322	612-442-4743
			Zirkle, Ray E.	55429	612-537-0184
			Ziskovsky, Frank	55033	612-437-2363
Wachal, David E.	55435	701-293-9664			
Wachenheim, Cheryl	55112	612-633-7497			
Wakefield, Brad-	55359	612-473-5239			
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Wallman, Curtis	55443	612-566-4944			
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Walsh, Thomas E.	55121	612-452-1458			
Walsh, Thomas J.	55441	612-331-7762			
Walters, Gerald	55369	612-424-2758			
Wantowan County Library	56081	N/A			
Wark, David M.	55108	612-644-8533			
Warner, James P.	55443	612-561-3683			
Warner, Lee E.	55430	612-560-0384			
Warner, Wilton	55345	612-934-9366			
Warrior, Jogesh (Jay)	55112	612-489-8694			
Warwood, Robert D.	55110	612-482-8437			
Washburn, Dan G.	55102	612-221-0530			
Waterson, Karen L.	98020	701-594-4789			
Wayzata, City Of Wayzata	55391	612-443-2010			
Weber, Lillian M.	55424	612-926-4152			
Weddle, Larry	55431	612-881-0285			
Wedell, Audrey	55110	612-426-2053			
Wehler, Daniel C.	55420	612-884-8765			
Wein, Rebecca M.	55343	612-546-8788			
Weiner, Howard	55435	612-935-9270			
Weinrebe, Dion R.	55431	612-888-6629			
Weis, John R.	56362	612-243-4975			
Weisberg, Burton G.	55426	612-938-3865			
Weisberg, Dr. Harold L.	55116	612-698-1009			
Welch, William W.	55364	612-472-3628			
Weldon, Howard L.	55437	612-835-3706			
Wellington, David A.	55407	612-824-4620			
Wendt, Richard W.	55379	612-445-7911			
Wendt, Wendell D.	55309	N/A			
Wenger, D. Wayne	55424	612-926-8627			
Wenthe, Pat	55419	612-822-5365			
Werner, Ralph	55337	612-890-0627			
Wescott, Jerry L.	55108	612-645-6370			
Wessels, Richard J.	55426	612-541-9214			
West Bank Commun.Dev.Corp	55454	N/A			
West, Dick W.	55303	612-753-4058			
West, John G.	56301	612-253-2429			
Westling, Ryan E.	55438	612-941-2452			
Wexler, John	55407	612-722-7069			
Wheelock, Nicholas A.	55104	612-644-8090			
Whipple, Alan G.	55105	612-699-5334			
White, Chuck	55379	612-445-6240			
White, Daniel E.	55337	612-894-6378			
White, David E.	55112	612-483-6926			

Z80 concluded from page 14

### Conclusion

anything that bears the Digital Research label. With this card, you will be more or less restricted to what can be downloaded from 8 inch standard CP/M formats. This card, like the Softcard //e, has its own video equipment and will not let you use your own video card's display (if you have one). It is rather large, with a lot of chips on it, meaning more heat, more power needed, and more chances of card failure due to bad chips. When I called Digital Research to find out about this card, they told me there is no support for Apple end users (and will not be in the future). They also said there was no technical support line. Digital Research will not answer any questions about the Gold Card unless you are a dealer. Despite the fact I work at a computer store on Saturdays, I was still not allowed to even know what the dealer support phone number is. I was told to see the dealer nearest me. The one and only dealer for this card in Colorado turned out to be the store I work at on Saturdays. I explained to Digital Research that I worked there, and that no one there knew about their card, nor had even seen one, and that I was trying to find out about them. I was told they would mail me literature, but they never did. I also wrote for information as per the instruction in a magazine, but received nothing that way either. I sent for both nearly 3 months ago. When I had one of the store owners call for me, the answer to my question about graphics was: the Gold Card supports no graphics. I'm not sure the representatives of Digital Research that I talked with knew what they were talking about, so I don't know if any of this information is correct; however, I will probably never buy any Digital Research products.

**Advanced Logic Systems "The CP/M Card"**  
—Digital Research had a big hand in the development of this card. Like most cards with 64K, it won't run the Microsoft Softcard format. It does not officially support any video or parallel/serial cards other than the ones made by ALS. Others may work, but you must find out for yourself. The price is much higher than the Applied Engineering card.

All the above cards have 64K of RAM on them. After what I've said so far, you may be thinking that the Softcard is not so bad after all. Don't let me leave you with that impression.

**Microsoft Softcard**--this card does not run CP/M 3.0, and it is more expensive than the Applied Engineering card.

The choice is yours, but in my opinion the winner is clearly the Applied Engineering card. I think it is the best Z80 card there is for the Apple II series.

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# Stocks

A Review of Stockpak II and Value/Screen  
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**T**hese two programs are very much alike and different at the same time. They are alike in that they are both designed to assist the investor with fundamental analysis and operate in the same general way by screening information from a data base. The data is updated monthly with new data disks mailed to you by the publisher. What you are really buying is the information service first and the ability to manipulate the information on your computer second. The programs have no use without the information provided by the publisher specifically for their programs. In neither case do you pay a separate price for the program. They are both closed systems in that you can not add more information to the data base provided or use the information outside of the program provided. The documentation for each is at least satisfactory. I have not had the opportunity to test their customer support services.

VALUE/SCREEN is published by Value Line and costs \$495 per year. A trial subscription for one month, including the complete program and one month of data, can be purchased for \$49. It includes only those stocks followed by Value Line, approximately 1,600. Stockpak II is published by Standard & Poor's. The cost depends on the stock group(s) you subscribe to. The NYSE (1,500 stocks), ASE (800 stocks) or a composite group (1,500 leading NYSE, ASE and OTC companies) databases each cost \$275 per year. The OTC (2,200 stocks) database is \$520 annually. A demo disk is available for \$10 (the club has a copy you can borrow). S & P will also let you cancel a subscription at any time for a pro-rata refund. Both program and data disks are copy protected. Value Line offers free replacement while you are a subscriber and does not provide back-ups. S & P achieves its' protection through a 'data integrity' card that requires a slot. The disks can be freely copied but only used on a machine with the card.

Since the primary thing you are buying with either Value/Screen or Stockpak is information, that is where you would start in choosing between these services. It may also be where you stop comparing because your information requirements may be met by one but not the other service. Further, once you have gotten this far, you need to decide if you really want the service on disk or in the more conventional printed subscription format that each publisher is more widely known for.

I will sidestep the question of the information provided by these two services beyond a few general comments. First,

these programs aren't cheap, and there is no information provided with them that you can not get from these same services at the local library. If you are not familiar with the Value Line and Standard & Poor's, I suggest you spend some time at the library or your broker's office studying the services.

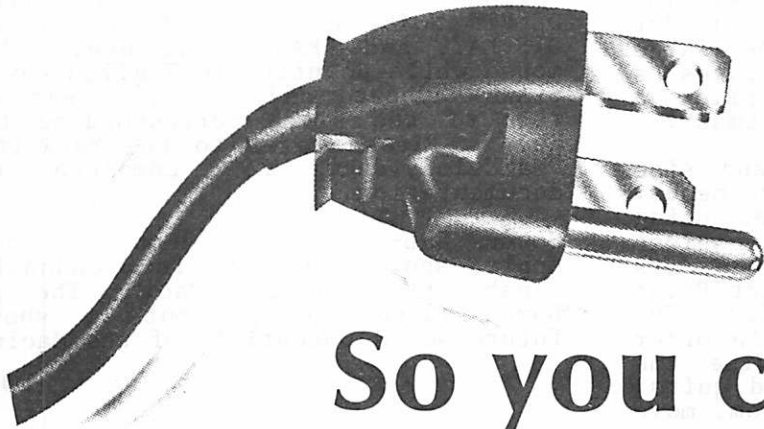
This will not only help you decide between the services, but also on how you want to get the information, i.e., by disk, broker, library, conventional subscription, etc. While both provide alot of data, Stockpak II provides more raw data on the company's financial and market results than Value/Screen. On the other hand, Value/Screen provides more advice and projections based on Value Line's judgement.

While both of these programs perform as advertised and are reasonably well executed, I feel that Stockpak II is the better of the two. The operation of the program is significantly faster. For example, it takes Stockpak about 5 seconds to recall data stored on disk on a particular stock compared to 40 seconds for Value/Screen. Stockpak will also produce bar charts comparing up to 4 items on 5 different stocks at the same time, or any 1 item on any number of stocks, and charts showing earnings per share and sales on any one company over the past five years. Stockpak's printouts and screen displays appear clearer and easier to follow to me. You can also store report formats which you can't do on Value/Screen (it doesn't take long to create one but it is irritating to create the same one over and over again).

Stockpak II will allow you to create your own ratios or data on a stock based on the information in the data base and include it as a part of any report. You may also screen the data base on on your own data or ratios as a part of the regular operation of the program. I see this as a major plus for Stockpak. Some of this could be accomplished in a round about fashion with Value/Screen, but no where nearly as well as with Stockpak. Both will let you store lists of stocks to run with new data from month to month. The edge does go to Value/Screen in evaluating a portfolio to appraise its characteristics. Note that neither of these programs provides for portfolio recordkeeping.

The bottom line as I see it is that if you like and use Value Line, Value/Screen will probably be your choice to aid you in your use of this service. Otherwise Stockpak II is easily my choice. If you would like more information on these, feel free to call me. Don Steinkamp, who helped at our October Investment SIG meeting when we demonstrated these programs, has also offered to field questions. He can be reached at 341-4333 week days and use Stockpak II regularly.

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# COMPUTER EXPO '85

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## MacDom #4

December 1984  
by Steven E. Baker

**O**ur fourth MacDOM contains several interesting programs. Our first Pascal programs make their appearance on this disk. Leighton Siegel, a long time Mini'app'les member, has contributed two Pascal utility programs to the club.

Here's what is on MacDOM #4:

**Banner**—Banner was written by John Gregory, PowerTools Software, and placed in the Public Domain for all Mac'ers. The program prints large signs on your dot matrix printer. Because of the large amount of printed output, it takes a significant amount of time to print a banner - 3/4 hour for "Merry Christmas"!

To use: select the font, style and size from the font and style pulldown menus. You can type and edit your banner using the standard Mac techniques. Next, select the shape and shading of the printed dots from the Tweek menu, and then select Print Banner from the File menu. NOTES: The Imagewriter ICON must be present in order to print the banner out, otherwise the printer backs up several lines and quits. For better results with this program, move

it to a disk with about 15K of free disk space. Banner size appears to be limited to only what you can see on the screen window.

**MacMelody and MacMelody.doc**—The program is a simple "Interactive Music Program with Graphic Display" by Jeff Miller. MacMelody displays a picture of a four octave piano keyboard, a row of 8 boxes with pictures of musical notes, and various other boxes labeled PLAYBACK, DELETE NOTE, CLEAR, QUIT, TEMPO, VOLUME, DISPLAY, and ERASE. To use: click the mouse while pointing to a given key on the piano keyboard and you will hear a short tone of the pitch corresponding to that key. Please refer to the MacWrite file "MacMelody.doc" for complete program documentation.

**Sound Lab**—An early demo program from Apple, showing off the four channel sound capabilities of the Mac. The program bombs quite often, but it shows the future sound potentials of the Macintosh.

GOTO 19

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MacDOM #4 continued from page 18

**Hendrix**—Another early sound demo program. To use: simply move the Watch ICON around the screen using the mouse to produce difference sounds. To Quit, press the Command key and "Q". There may be other commands possible. This program bombs (causes system errors), and is generally rather unreliable. So, be prepared to get out the paper clip to eject your disk!

**Sound**—A MacWrite file describing both the generation of computer sound and the sound hardware in the Mac.

**The Towers of Hanoi**—Old favorite Apple [[ program adapted to the Mac. Demo shows the required movements necessary to move a user-determined number of rings from the left stack to the right stack.

**Hilbert**—Demo program showing fill graphics on the Mac. If anyone can explain what this program is doing or (even better) why, please step forward. Your Editor thinks he can. This is a variation on a recursive programming technique that is used in several "Logo" manuals as an example of that process. The code looks something like this:

```
TO SQR :LENGTH
  IF :LENGTH <5 STOP
  REPEAT 4 [FD :LENGTH RT 90]
  SQR :LENGTH/2
END
```

**Enlarge and Enlarge.doc**—This Microsoft Basic program enlarges any MacPaint compatible picture file into four files, each of which contains one quarter of the original image, doubled in size. These quarters may be printed out, using MacPaint, and pasted together to form a large picture that is twice as high and twice as large as the original. Or, each quarter can be enlarged, producing sixteen pictures which can be cut and pasted to form a very large picture which is four times as wide, and four times as long as the original. Please refer to the MacWrite file "Enlarge.doc" for complete program documentation.

**MacPaint Doc.Format**—A MacWrite file written by Bill Atkinson. He explains that MacPaint documents are easy to read and write, and have become a standard interchange format for full-page bitmap images on Macintosh. Their internal format

GOTO 20

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# "CLIP 1"

A Macintosh review  
by John Carter



**I**ntroduction by the Editor: CLIP 1 is, as John calls it below, an "art" disk. This puts in the category of several disks previously released for the Mac, such as the the **Da Vinci** series (Hayden Software), **Click Art** or **Mac the Knife**. Each of these disks consists of a series of MacPaint files containing one or more "pictures" per file.

The idea is that you select a picture of choice, modify it, if need be, and then copy it, via the Mac Clipboard (and perhaps the Scrapbook), to whatever it is into which you wish to paste it. The 3 illustrations contained herein are taken from CLIP 1.

## The Review

Most art reviews are subjective and depend, in large part, on the reviewer's personal opinions. This review is no different, and takes the approach of asking "How can I use this art disk?" First reaction was... "Here's another one!" In the last few months I have had the opportunity to sample a number of so-called art disks. And by "sample" I mean I had run print-outs, filed and forgotten them. The reason? In nearly every case the pictures and drawing were fun to look at and manipulate, but were not useful to me.



As a non-artist I definitely have need for "canned" drawings for business use, but the selection of drawings available on art disks just aren't applicable. For example, a lot of my work involves the use of overhead projection of transparencies (the type used in sales and marketing presentations).

Detailed, heavily shaded pictures don't show well when projected to large groups. If the drawing is complex it rarely communicates the point clearly and simply, and in any case, it's physically difficult (and expensive) to produce good transparencies with a lot of detail (requires photograph processing)... Alas,

CLIP 1 drawings were detailed, heavily shaded and complex - no good for my use!

CLIP 1's manual was certainly comprehensive (wordy) and explanatory for the novice Mac user. Perhaps too wordy even for the novice (It seemed to be a MacPaint manual in its own right). I did take the time to read most of it, hoping to learn the "subtle points" that CLIP 1 said they had learned in developing the disk. I couldn't find anything new that wasn't already published. Overall, the manual was well written and "chatty", but did not measurably contribute to the disk contents.

## Conclusion



CLIP 1 is similar to many other art disk on the market, perhaps lacking in variety (too many drawings on the same theme). Is it worth \$40? I think not.



## MacDOM #4 concluded from page 19

is described here to aid program developers in generating and reading MacPaint documents.

**MacART folder**—Contains a highly detailed picture "OBSCURE", author unknown. See it to believe it.

## Pascal Utilites—

**Crossref Fancy and Crossref Plain.** Two versions of the same Pascal program, adapted for Macintosh Pascal by Leighton Siegel. The Crossref Fancy program will generate a line numbered listing of a Macintosh Pascal program, and a cross reference list of all program words. It then sends them to the Imagewriter printer. Identifiers and reserved words are separated into two different lists. And a lot of other nice things are also done, as you will see. Leighton advises that, for loooooooong programs, a Fat-Mac (512K) may be needed. The second version (Crossref Plain) does the same job, but without the bells and whistles contained in the first.

Now that Pascal language is available, I hope additional Pascal programs will be written and contributed to future MacDOM's. Ok you Pascal-nites (sic), its up to you!





# MacPlace

November MacSig Meeting Report  
by Tom Edwards

God, how this group does grow! I arrived about 6:45, and already the 60-70 chairs set out were well on their way to being filled. More were set out and probably totaled 100-110 by the time Mike Carlson started the meeting at 7:00. Prior to that, Steve Baker was kept busy selling the 3 MacDOM's that the club has, plus the Desk Accessory Mover disk.

It's kind of hard to give you an organized report on this type of meeting. There was no "presentation" as such, but the interest of the MacGroup was high. We had real, live Apple employees that fielded questions, offered information and voiced some opinions about Mac/Lisa, Apple, software, hardware, development and future directions.

The Apple representatives were Jim Hogan, National Accounts Executive, and Kirk Olsson, Technical Support. They are part of 23 Apple employees now working out of the new Minneapolis office which replaces the previous distributor arrangement (Clothier-Harold Co.). This office now covers direct sales to "National Accounts", retail, educational, "VAR" (replaces OEM), and educational structures. They have 10 phone lines into the new digs (893-1840, but please don't abuse the number...try your other options first).

This is just the way things came up for discussion. For the sake of ease, I'll not identify the source of each point. Some things were initiated by Jim or Kirk, some were responses to questions from the MacGroup, and some were statements from the floor.

- The Macintosh has continued to sell quite well. The installed base is now about 250,000. The 512K upgrade is available. Initial shipments since announced availability (early October) have been slow, but hopes are that December will see reasonable deliveries. The upgrade is a board swap, and does not improve the serial port rate, contrary to some early rumors. A new system disk is part of the swap, and it figures in a sweetener for owners of record prior to Sept. 10, 1984 (those early buyers can get MacDraw and MacProject as a bonus).
- Development is heavily focused on the Mac. Jim handed out a listing (dated November) of 600 products of which Apple is aware. Macworld has a "Buyer's Guide" that gives short reviews on a number of new things in a pretty slick format. (I've seen a copy, and probably will buy one when I can find it for sale; about \$8.00.) Apple has a

"Developer's Handbook" that gives contact information for which many have been looking. (Macworld published a mail address that might help too: for those interested in Apple Software Industry Relations, or MacCollege, write to Software Industry Relations, Apple Computer, 20525 Mariani Ave., Mail Stop 23AF, Cupertino, CA 95014.)

- Apple is not doing a great deal of development. They hope the same type of support comes from "3rd party" as happened with the // series. With 512K, Mac will soon be the tool for developers directly, removing Lisa from that part of the cycle and opening things up for the smaller guy. Apple hopes to put the information needed, such as "Inside Macintosh", into a more open distribution channel. {See "Rumors" below - Ed.} Other tools, like 68000 assembler, "C", and other popular development languages, are on the near horizon. (Some of the "C's are, in fact, out. Again, see "Rumors" below - Ed.) Apple is also trying to expand on the "MacCollege" courses, and offer on-line support in ways that will build a larger developer base.
- Apple is committed to supporting the Lisa, making it even more compatible with the Mac by ironing out the display discrepancies and perhaps a few more things, but will not take it much farther. Further innovations under the Office System software will again be left to the 3rd party group. With 7/7 software, Lisa is a powerful choice for certain situations. Even with recent price reductions of the Mac, in selected configurations Lisa may cost (slightly) less and offers some capabilities that are still dreams in Mac-ers' eyes (integration, IMG memory, UNIX, to name three).
- One of the big dreams still over the horizon for Mac, is the 1-2-3 syndrome, regarded by some as needed to make the Mac into a bigtime player. Lotus calls their Mac product "Jazz", integrates 5 programs, needs 512K, prices it (tentatively) at \$595 and says look for it in March '85. Some have seen early copies of the product and think that it cures a lot of the negatives of Symphony by taking full advantage of the Macintosh interface. (Specs for Jazz were published in last month's MacPlace - Ed.)

GOTO 22



MacPlace continued from page 21

The other price grumble was on the upgrade to 512K. Some, that know chips and boards, seemed to be of the opinion that \$995 is off by a factor of 2. It was acknowledged that the dealer is dipping here too, and must be paid for the labor of the swap (about a half hour). The only redeeming thought was that you get a new board with the "latest" circuit revisions, but golly! you don't even get to keep your old board for that \$995.

Now don't get the idea that we tarred and feathered Jim and Kirk over these concerns. The comments were sincere but civil. The grumble session concluded with the wish that Apple could set a better example on announced release dates vs. actual release dates. Apple has missed on several of the software promises for the Mac. Really, this has got to seem like a no-win dilemma to Apple. Not hinting about software products in the works (as if that were possible) casts doubt on the credibility of the machine. And beating their gums over things that are way off only makes the consumer press harder for the end product and cry "Where is it?". No, I don't envy Apple on this one. An honest effort should be made to hold to target dates, but you and I don't want to see buggy stuff just for the sake of a date on the calendar. And don't forget, the 512K showed earlier than the announced date! Somebody's trying!

Jim reminded the MacGroup that Apple is a unique company, besides the cutoffs and sandals image. Apple has about 5000 employees worldwide and will post sales for this year close to \$1.5 billion. The ratio of employees to sales is low, compared to other big board players in this league. (OK, Triviaites. How about squeezing some numbers out for us on this?). His point was that Apple has to focus on one task in an area. The resources (read people) can't be spread over a bunch of projects, work them out to a decision point, and then pick and choose the best. Apple can't afford to ashcan something, because there probably isn't a backup.

For those that feel very strongly about something Apple related, good or bad, we were reminded that Apple can be reached by mail. Those that take the time to write should get a response from a real, live Cupertinoite. Use the address above, but drop the mail stop and change the department name to suit your missive.

Deserved thanks were expressed by the MacGroup to our speakers as the exchange was cut off at about 8:30 to cover other business. The usual round of introductions was skipped as the hour was getting late.

Mike Carlson reminded those present that

the next meeting would be December 17 at the same Southdale library location. The program will be short reviews of as many Mac data base programs as possible. Volunteers immediately came forth for DB Master, FileVision and Overview. Other reviewers should coordinate with Mike so we get as many peeks as possible. There must be 20 products available by now.

Some quick announcements were made in the flurry prior to adjournment.

- There is a PC board development system available for Mac that can get you a sample board returned for \$10.
- Buchler is coordinating a Mac disk buy which should be history by the time you get this. See Rumors, below.
- Ramsey Smith is starting up a U of M SIG for Mac, looking for the more advanced user, familiar with Fortran, Pascal, and inner workings.

Once again, MacSIG scores with a dynamite meeting for this very active and growing segment. If you want to see something particular, make your wishes known to Mike Carlson (866-3441). Every effort will be made to offer a balanced program with something of interest to most everyone, regardless of your level of MacKnowledge. It may not be long before the size and scope of the MacSIG can offer subgroups on its own, as this pace of growth continues.

Once again, enjoy your Mac and pass the word along.

GOTO 23

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MacPlace continued from page 22

- Look for other integrated software products, too. Microsoft has something in the works, and Apple/Haba (not sure who will market it yet) is readying a Mac version of AppleWorks that will run on 128K... Hooray for the little guys! This is a "soon" product, too!
- One other major piece to the bigtime puzzle is the subject of office communications, LAN, shared peripherals or what ever tag you wish to hang on it...try "AppleTalk" as the current buzzword instead of "Bus", "Line" or whatever. This phantom product has had its specs downgraded in some eyes. The focus now is to let Macs in a department zone share major peripherals like a laser printer or mass storage and offer a "gateway" to the EtherNet (sic). Since Apple is coming from behind in this area, the approach does make some sense... Apple would be hard pressed to do anything "right" tied hard to any current system. This should also cut the lag time considerably, and reportably will let you latch another Mac into the system for a \$50 pittance (once you've bought the big piece).
- Also mentioned as available or very close, were: MacRamdisk (512K Mac, from Assimilation Process), MacWrite revised (upgrades from dealers, maybe December), Alice (game from Apple).
- The long rumored color Mac appears to be just that...rumored. Yes, such a creature does exist, but cost and size mean an unrealistic product in the current timeframe. In an informal poll, the MacGroup leaned to the software alternative of being able to assign B/W patterns on the screen to colors that can be output to a printer or similar device. Most did not want to give up resolution (in fact, some asked for even more pixels) or part with the family jewels to see color on the screen.
- Somewhere in the future, the Mac should get double sided drives (800K). Sony is currently getting the blame for the hold-up. The outboard drive will probably be first, but there appears to be no significant reason that prevents the inboard from growing, too.
- Efficient work with a hard drive requires some rework to the Finder. Apple appears to know what, but just is not popping that up as a priority. Would you suppose that they are working on a hard drive a la Apple before making the rev? (See how easy it is? I just started my own rumor!)
- For those of you still thinking about a Mac, has Apple got a deal for you! They are running a "Test Drive" promo where you can take one home for a day and try it out. Apple has a package of "Guided

Tour" software that goes with it... but check around. Sounds like some of the dealers were playing with a short deck on this part of the deal... there may be some differences from one garage to another.

- Mac will make further inroads in the education area, but don't hold your breath. The Minnesota base of // series in educational facilities alone is 14,000 machines. It will take some time for Mac to filter into the lower grades against that much inertia. However, the Apple college program is pretty heavily oriented to Mac and may be a different story.

Lest you think that we pulled our punches on the Apple reps, we did register a few concerns that hopefully will wend their way back to corporate. Price was a concern on two fronts... Those initial pioneers that paid "full bore" to make the 100 day dream come true, get a bit steamed when they see current prices about a third lower than their receipt shows. All are aware of the price trend of hardware, but gee, the Mac hasn't even had its first birthday yet!

GOTO 24

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MacPlace continued from page 23

**Late Newsflash** (from your Editor):

The January meeting will be at the Edina Library, not Southdale. See Announcements. The February MacSIG meeting topic will probably be a review of 3 more database programs: PFS, Disk Cataloger (on the DOM) and Helix. We hope to make March a **Swap Meet** - public domain only, please!

**New MacStuff and Rumors**  
by Dan Buchler

• **Bulk disk purchases:** The situation at the moment is as follows: Club members may buy Maxell MF1-DD disks from Dan Patch Systems at \$33 (including tax), or Apple Diskettes at \$36.04 (including tax) from Hagen Office Systems. Both of these dealers have kindly offered this "deal" as a service to the club. Other dealers who wish to participate may call me. There is a minimum quantity of 100 disks (10 boxes) for the club on the Apple disks, but no minimum on Maxell disks. I am willing to act as an intermediary on either the Apple or the Maxell diskettes. If you want Maxell diskettes, send a check to me, made out to Dan Patch Systems, covering \$33 per box. If you want Apple diskettes, call

first, unless your order is for more than 10 boxes. The checks will go straight to the dealer. So, if there are any errors on the check, you won't get your disks. The disks will be delivered at the meeting. Checks must be in my hands at least one week in front of meeting. Since we are not allowed to sell at the Hennepin County Library, **the money must be mailed in advance.**

- There is a good **new magazine** which is attempting to replace St Mac. In fact, they will give you an extra 4 issues, if you send them your St Mac mailing label. The **MACazine** is available for \$18 through January 1, 1985 (after which it is \$24). However, the publisher, Iconcepts, will extend the special charter rate of \$18 through January, if you mention you are a member of Mini'app'les. Write to:  
 ICONCEPTS - The MACazine  
 P. O. Box 1936  
 Athens  
 Texas 75751
- With respect to "Inside Macintosh", you will all be happy to know that, according to the December edition of MACazine (See above), this information

**GOTO 25**



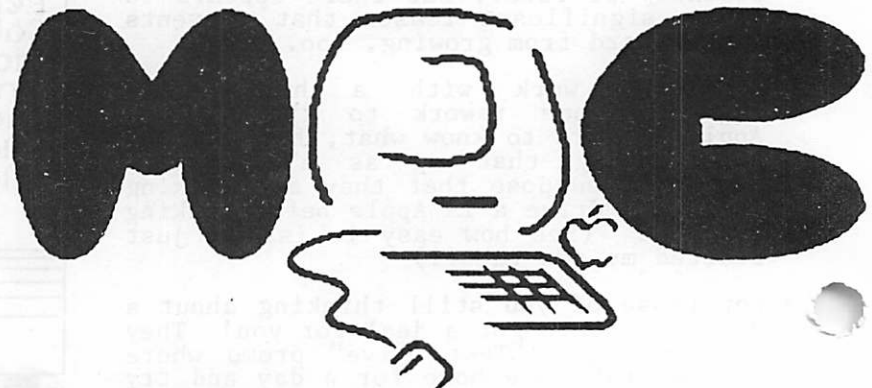
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MacPlace concluded from page 24

will be published in a book called "Within Mac" by Thom Hogan through Robert J. Brady Company, a subsidiary of Prentice Hall. Anyone interested in a bulk purchase of this book?

- Regarding "C" languages, again, MACazine comes to the rescue. Their Jan. 1985, edition, is supposed to feature 6 different "C" compilers. - Ed.

Talking about magazines, you all probably know by now that A+ has taken over old subscribers of Softalk. It is also worthy of note that A+ runs a significant section on the Mac. The coverage of Mac, including ads, was as follows:

Issue Month	Total Pages	Mac Pages	% Mac
November	223	55	25%
December	254	66	26%
January	207	49	24%

You may notice how consistent that Mac percentage is for each month! January contains a good review of "Word" and an article on porting Basic programs from the Apple II or //e to the Mac. A tip in the November edition tells one to type Command Key A followed by Command Key E to quickly Eject disks from both drives!

One current problem associated with the plethora of Mac magazines, is a lot of repetition. For example, I have seen both Pascal and Forth language reviews in at least 3 different magazines.

Still talking about magazines, I also read "Apple User", which is a British Publication. They reviewed two books: "Understanding the Macintosh" by Rick Dayton, Prentice/Hall, and "Presenting the Macintosh" by Miller & Myers, Dilithium Press. They suggest that the Rick Dayton book is not worth getting and that the Dilithium book might be useful to someone contemplating buying a Mac, but little use afterwards.

An old favorite, "Dr Dobb's Journal", in the January, 1985 edition, details how to upgrade from 128K to 512K, for about \$300 in parts. Caution: "Club MAC" advises against anyone doing this as the Mac's mother board is of the multi-layer variety, and it is very difficult to

solder to this type of board.

Several club members have recently bought 1200 baud modems. I acquired a Prometheus with PROCOM M software. The software is still in a Beta test stage, but you can download the latest version from the Prometheus bulletin board in California and the company provides excellent support. I'd like to run a modem potpourri in the newsletter soon, so I am soliciting input from you Mac-Modem-ers.

Latest date for MacDraw is January 15th!

New MacWrite is supposedly shipping, but we haven't talked to anyone who has gotten a released copy! Rumor is that the Hayden Speller won't work with the new 'Write either. Prerelease has to convert file formats from old to new, and won't work in reverse. Final version supposedly has that problem licked.

This article is my first attempt at printing with the Assimilation company's "Mac Daisy Wheel Connection" software using the Apple LQP. The product is much more solid than the ProPrint, reported on last month. However, it too has some defects. Will report on these in due course. By the way, "Word" supports daisy wheel printers in its print menu!



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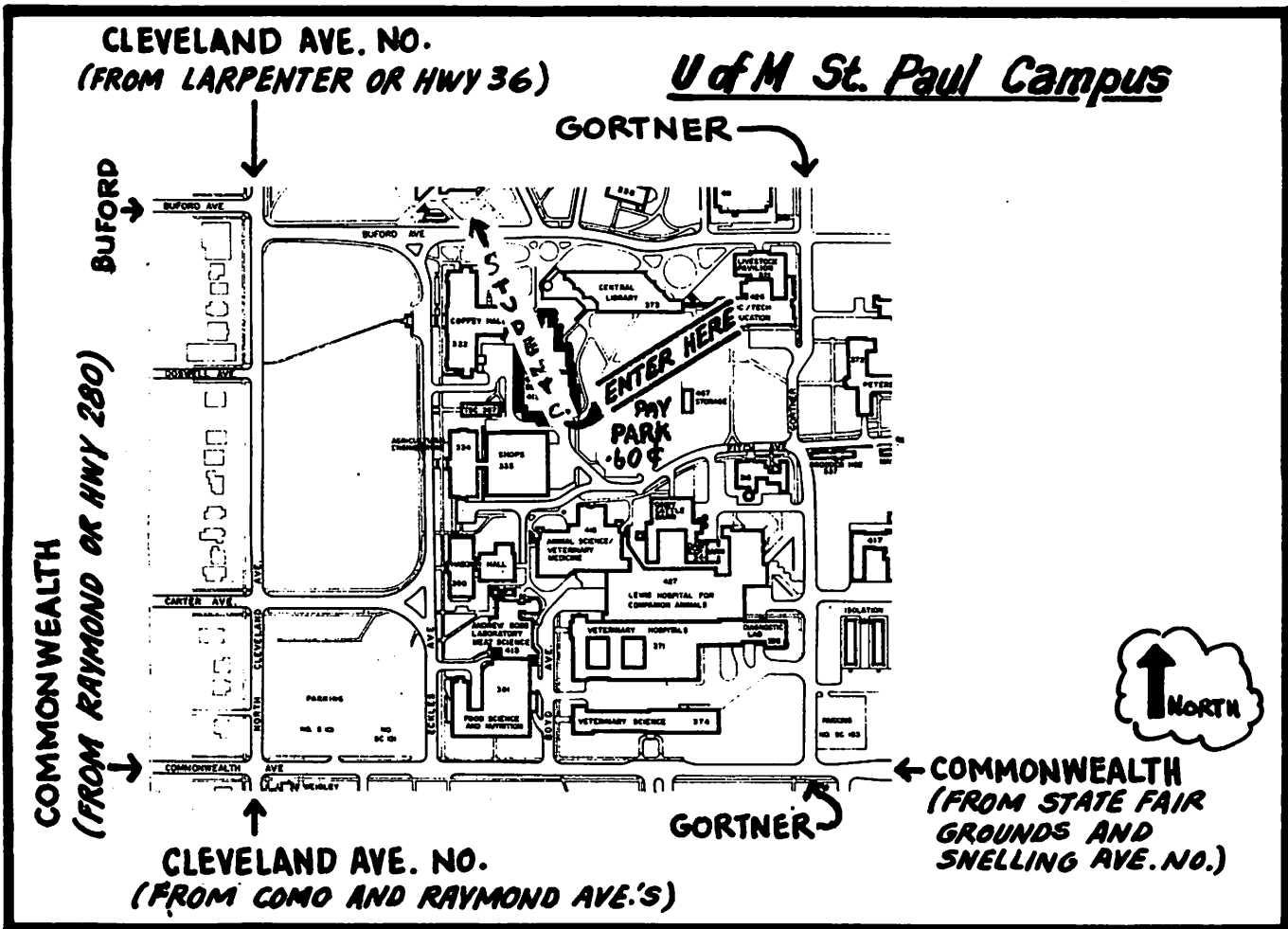
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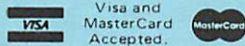
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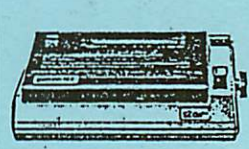
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